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Opportunities for International Health Activities

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TODAY'S opportunities for effective international coöperative organization and administration in the health field are greater than ever before. Enormous problems cry out for solution. And at the same time the United Nations Organization is being set up, a great new venture with machinery designed realistically to attack world problems. Experience of the past is available to serve as a guide for future operations, so that previous mistakes may be avoided, and yesterday's considerable record of successful joint activities extended. There is less occasion for controversy in the health field than in almost any other.

This really unique situation demands aggressive action and the highest quality of leadership, much of which must come from America just now. Our resources in trained health personnel are greater than at any previous period in our history. During the war our losses and suffering have been less severe than experienced by many other nations. Should we fail to grasp this opportunity and accept our responsibility we will probably never again have a chance equally good.

The world has new difficulties demanding attention in addition to the old health problems of communicable disease, malnutrition, inadequate housing and a host of others. The great speed of modern transport and communication and the destructiveness of modern warfare, atomic and otherwise, have created opportunities beyond our previous dreams. Whether or not he likes the idea, the health of a man's neighbors concerns everyone on this planet. Even with better technical knowledge and more effective tools at hand than ever before our health defenses can be only partially effective unless built on a firm international or supra-national framework.

Past and present experience can serve as useful guides for action. The Health Section was unquestionably one activity of the League of Nations which made most important contributions to world welfare and happiness. There is enormous value in the communicable dis-

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ease intelligence services and other functions carried on by the Pan American Sanitary Bureau and by the Office Internationale d'Hygiene Publique in Paris. In UNRRA the Health Division has the responsibility of administering the International Sanitary Conventions of 1944 as well as other duties related to relief and rehabilitation of war-torn territories and populations of the United Nations. These agencies already carry on tasks recognized as essential, and have personnel with rich experience arising from their work as international civil servants. In addition a number of philanthropic organizations have acquired a very useful body of information from widespread and productive international health projects.

Thus there are a number of people equipped to advise on the pitfalls to be avoided as well as the most profitable fields for future development in international health organization and action. It remains to be seen how these available assets can be used most effectively in setting up the health section which is to be a part of the United Nations Organization. Many competent persons are carefully weighing the situation and we may confidently expect definite proposals in the very near future.

Naturally, only a few will be called on to make the weighty decisions required. What can other health workers in America do to help solve these questions which so vitally affect us?

We have numerous opportunities if we are willing to seek them out and grasp them as they arise. One profitable approach lies in the cultivation of better understanding of other nations, their problems and their people. This may come from study of needs existing elsewhere and the resources and organization available to meet them. In addition, many of us will be in personal contact with "foreign" health workers coming to America as students, fellows or observers. They will seem less foreign if we take the initiative and get to know them more than superficially. Undoubtedly we shall discover that our visitors can make real and valuable contributions to American health practice in return for what we do in facilitating their observation of our methods. A smaller, more fortunate group of us will be able to visit other countries. This will be the best method of gaining understanding, provided we travel as the learners which all good teachers must be.

In discussions among ourselves it is apparent that often we are none too certain of the value of some of our health practices. Perhaps distance lends enchantment to them when we expect other peoples to adopt American ideas more or less at a single gulp without stopping for breath. And this even though conditions may be vastly different from ours in the country concerned and the health movement in quite another phase of development.

A good many of us associated with UNRRA were almost incredulous when it became evident that some of the devastated countries, while quite ready to accept needed medical supplies, were very hesitant to accept suggestions for the improvement of their admittedly inadequate health services. Some of us had failed to recall how long it has taken us to reach our present level of attainment. We had neglected also to ask ourselves how willingly we in America would have accepted advice from "foreigners" even though they came to us bearing much needed gifts. Perhaps it was quite natural for health authorities of the countries being assisted to wonder how we could expect to gain an authoritative knowledge of their needs within only a few weeks or months of residence.

If approached philosophically and if we avoid annoyance at what may appear rebuffs, this UNRRA experience

can be extremely useful. Thoughtful consideration may show where mistakes have been made and where expectation has greatly exceeded the probability of success, at least within a relatively short period of time.

Those who have been in Europe recently find upon returning to America what seems a strange indifference to world problems. This may be a sort of war weariness, but even if that is the explanation America has much less reason to be war weary than most other nations. We have had to give up comparatively little in the way of comforts. Our food supply has been more than adequate, and war damage of our buildings restricted to that resulting from the crash of one of our own planes into the Empire State Building. We are surely in physical condition for world leadership provided our moral fiber is sufficiently strong.

My own experience in Europe was limited to a year, mostly in England, but also in Germany, France, and Belgium. Destruction of buildings is greater in Germany than elsewhere and undoubtedly the German people are having an extremely tough winter with many deaths probable. Malnutrition and exposure have reduced resistance to communicable disease to the point where case fatality rates are three or four times the normal. The British people are tired after several years of suffering, but their spirit has been remarkably good throughout. British public health practice is sufficiently similar to ours for us to have no serious difficulty in working closely together on common problems, and there is much that we can learn from them. Close collaboration between British and American military forces is recognized as an outstanding product of this war. There is every reason to believe that it may be successfully continued to strengthen the peace. And in the health field the prospect is particularly bright.

Even with a limited experience, my convictions of the need for present international health coöperation are very strong. Those who have seen conditions abroad have a real responsibility to point out to their coworkers the possibilities inherent in the present situation. This appeal is made in that spirit.

The Norton Medical Award

Announcement has recently been made of the third annual Norton Medical Award of $3,500. This award of the publishing firm W. W. Norton & Company is offered to encourage the writing of books for laymen by medical men or books which relate medicine to society and demonstrate the spirit that inspires and sustains men of medicine in their work. The final date for delivery of manuscripts is November 1, 1946, and the award will be announced and the manuscript published early in 1947. Full details may be secured from W. W. Norton Company, 70 Fifth Avenue, New York 11.

The first of these awards was made to Dr. Carl Binger in 1945 for *The Doctor's Job*. The winning book for 1946, announced in March for May publication, is *Doctors East, Doctors West! An American Physician's Life in China*, by Dr. Edward H. Hume. Dr. Hume spent nearly twenty-five years in the Yale Medical College in China of which he was a founder and organizer.

Bacteriologic Procedures in the Evaluation of Methods for Control of Air-borne Infection

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MICROÖRGANISMS ordinarily invade the atmosphere on dust particles, in droplets, or in the nuclei of instantaneously evaporated droplets, normally differentiated as follows:

	Dust	*Droplets*	*Droplet Nuclei*
SOURCES OF MATERIAL	Solid matter; fabrics, etc.	Fluids from nose and throat	Solid residues of evaporated droplets
PRODUCTION	Attrition	Atomization of fluids	Evaporation of droplets
MODE OF SUSPENSION	Air wafted	Projected into air by sneezing, etc.	Caught in air by evaporation
PARTICLE DIAMETER	10 to 100 microns	Larger than 100 microns	2 to 10 microns
SETTLING VELOCITY	Foot per minute to foot per second	Greater than foot per second	Less than foot per minute
TIME OF SUSPENSION	Limited by settling velocity	Less than 3 seconds	Limited indoors by ventilation
FLIGHT RANGE	Hovers in clouds	Immediate in space	Dispersed throughout indoor atmosphere
CONCENTRATION	Locally high	Immediately intense	Diffuse and dilute
AGE OF INFECTION	Survivors of accumulation	Fresh	Limited by ventilation
TYPES OF ORGANISMS	Mostly saprophytic	Parasitic and pathogenic	Parasitic and pathogenic
NUMBER PER CU. FT.	Normally below 100	Indeterminate	Normally below one
BACTERIA/PARTICLE	Clumps	Indeterminate	Seldom more than one
INHALATION	Trapped in nose and throat	Indeterminate	Penetrate to lung

The differentiation by bacteriologic procedure of each of these three classes of air-borne infection has profoundly changed our concepts of disease transmission. Thus the demonstration, a

	Dust	*Droplets*	*Droplet Nuclei*
MODE OF INFECTION	Endemic infection of nose and throat	Contact infection	Epidemic contagion
PATTERN OF INFECTION	Static	Indeterminate	Dynamic
VULNERABILITY	Resistant	Indeterminate	Vulnerable to chemical and physical agents
REMOVAL	Filtration and electrostatic precipitation	Best by face mask	Electrostatic precipitation; difficult by filtration
CONTROL	Air cleanliness	"spacing out"	Sanitary Ventilation (air change and equivalent air disinfection)

century ago, that boiled fluids might not spoil if protected from floating germs led to the science of bacteriology and the germ theory of disease. Air-borne germs seemed to offer a rationalization of the generally accepted miasmic theory, and the study of air-borne organisms dominated the early development of bacteriology. But dust-borne bacteria were found to be mostly saprophytic; pathogenic organisms causing intestinal disease were found mostly to be ingested; and the most typical miasm of all—malaria—was found at last to be insect-borne. The validity of these newer concepts was abundantly confirmed by the success of sanitary control based on analytical procedures.

But respiratory infections, caught from persons sharing indoor atmospheres—i.e., contagious diseases—did not yield to sanitary control; for, almost fifty years ago, bacteriologists had concluded that these infections also were not air-borne, because droplets coughed or sneezed into the air did not settle upon Petri plates exposed beyond a few feet. Our generation, taught that contagious disease was transferred by immediate contact—for proximity in time and space required to infect by such droplets was construed as a form of contact—paid little heed to sanitary ventilation.

This fallacy was however refuted, a decade ago, by recovery of virulent organisms in the residues of instantaneously evaporating droplets; these nuclei settled so slowly that they had been missed on exposed Petri plates. If the nuclei of infected droplets, coughed or sneezed into the air, drift like cigarette smoke on air currents until breathed, vented by air replacement, or removed by purification processes, then sanitary control of ventilation must be guided by bacteriological procedures capable of distinguishing these droplet nuclei.

BACTERIOLOGIC PROCEDURES

Procedures developed in half a century of intensive study of dust-borne bacteria and droplet infection were reviewed by the Committee on Standard Methods for the Examination of Air (1917); adequate methods adopted by the Association are still in force: the exposed plate gave the number of bacteria-bearing particles; the filter or washer gave the number of dust-borne bacteria. But dust-borne organisms had already been acquitted by bacteriology; between the acceptance of the final report in 1917 and the description of a new apparatus for study of the bacterial behavior of air in 1933, practically no contributions to this subject appeared in the *American Journal of Public Health*.

Experimental procedures introduced by the new sampling method aroused

immediate interest in air-borne infection and disinfection of air, which led in 1936 to the creation of a subcommittee with the special task of recommending procedures capable of differentiating droplet nuclei infection from dust- or droplet-borne infection. Six progress reports have been submitted (1937–1942) and these were integrated into a consistent system of sanitary air analysis (Wells, 1943). The creation of another subcommittee for evaluating methods of control of air-borne infection indicates the need of routine bacteriological procedures in specifying sanitary ventilation.

Droplet nuclei are characterized by small size of particle—small weight compared to surface area. Air friction clutches the surface of small particles in accordance with Stokes' Law of Viscosity, the essential quality which makes air a vehicle of infection. Except for air viscosity, particles would quickly sediment in accordance with Newton's Law of Gravity. Settling velocity which, according to Stokes' Law, varies with the surface area or the square of particle diameter, governs suspension or flight range of particles; measures air drag which sweeps them into the respiratory tract; and is often correlated with sources of infection. Settling velocity thus becomes the most significant physical determination of air-borne infection relative to pollution and purification of air.

The settling velocity of nuclei of culture broth, atomized into a quiet chamber 8 ft. on a side, has been exhaustively studied by Phelps. Simultaneous plate exposures at different points (Phelps and Buchbinder, 1941) showed uniform density throughout the chamber, enabling computation of settling velocity from successive plate exposures. Bacteria-bearing nuclei, according to these computations, settled 0.03 ft. per min.—the value plotted on Chart 1. Few droplet nuclei would therefore be deposited in ventilated rooms. So slowly do they settle that their concentration in ventilated atmospheres is determined by rate of addition divided by ventilation rate, rather than upon room activities. As they do not accumulate on surfaces, the dispersion of infected droplet nuclei depends upon the presence within the atmosphere of a person in an infective stage—a characteristic of contagious disease recognized since early times.

Dust deposit depends upon settling velocity; in fact, the ratio of area count (rate of deposit) to volume count (number of bacteria-bearing particles rather than bacteria borne by the particles) defines settling velocity of particles. Values of mean settling velocity of bacteria-bearing particles in various atmospheres as determined by this simple procedure, are tabulated and plotted on Chart 1. Obviously most dust particles settle faster than 1 ft. per min. in ordinary atmospheres. Under conditions of exceptional activity, capable of retaining coarser matter in the air, the average value is greater; under quiet conditions, or where droplet nuclei have been added to the atmosphere (e), the average value may be less. In any case, accumulated dust can be stirred up by activities independent of the presence of an infective person. Resistant organisms in such accumulations, if not removed, are a continual threat of static air-borne infections in contrast to dynamic nuclei contagion. Dust particles, unlike droplet nuclei which readily penetrate to the lung, are more associated with endemic infections of the nose and throat than epidemic phenomena of contagion.

It follows, from the small size of atomized droplets, that seldom would more than one organism be included in a nucleus; this distinguishes droplet nuclei from dust-borne clumps of bacteria. Individual organisms in dust particles, collected in liquids, as by the accepted methods of the Association,

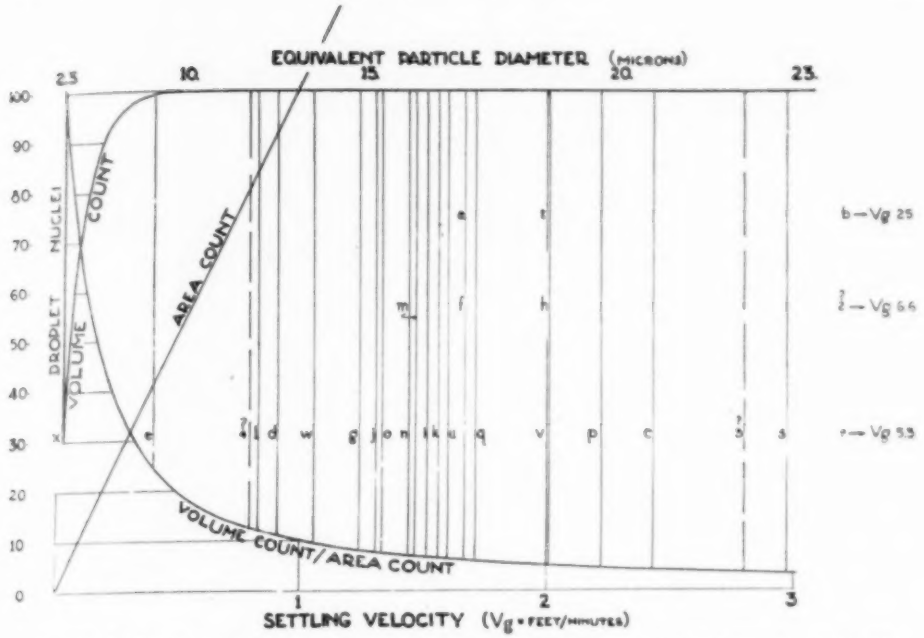

CHART 1. SETTLING VELOCITY of Air-borne Infection. Vg = A/D, where A = rate of deposit and D = density. AREA COUNT = rate of deposit per sq. ft. per min. (15 min. exposure of Petri dish). VOLUME COUNT = air centrifuge count per cu. ft. per density of 100 bacteria-bearing particles per cu. ft. VOLUME COUNT/AREA COUNT is multiplied by ten.

a.	Outside air, Near laboratory	1.67
b.	" " , Near Textile Mills	25
c.	Textile mill air, Dusty (carding, etc.)	2.43
d.	" " " , Settled (spinning, etc.)	0.91
e.	" " " , Humidified (weaving, etc.)	0.42
f.	Hospital air, Clinic (children, Boston)	1.66
g.	" " , Cubicle Wards (infants, Philadelphia)	1.14
h.	" " , Operating rooms, Boston	2.04
i.	" " , " " , Pittsburgh, Air-conditioned	1.56
j.	" " , " " , " , Not air-conditioned	1.32
k.	" " , " " , Iowa City, General surgery	1.59
l.	" " , " " , " " , Head surgery	0.83
m.	" " , " " , " " , Orthopedic surgery	1.47
n.	" " , Delivery rooms, Iowa City	1.41
o.	" " , Halls, Philadelphia	1.33
p.	" " , " , Iowa City	2.22
q.	Orphanage air (Philadelphia). Nursery	1.71
r.	" " " , Play-room (1–2 year children)	5.26
s.	Dormitory, Army barracks used as ward, Morning	2.93
t.	" " " " " " , Evening	2.00
u.	Schools, Unirradiated	1.6
v.	" , Irradiated	2.0
w.	Sneeze infected air	1.06
x.	Droplet nuclei from atomizer	0.03

References from (a) to (t), also (x) given on Table 1 (Wells, 1943).
(u) and (v), anonymous.
(w) from Bourdillon, Lidwell, and Lovelock, *Brit. M. J.*, 1, 42 (Jan. 10), 1942.

are separated and counted as colonies; whereas a droplet nucleus would probably register merely as a single colony. Thus a large number of bacteria per particle, or total bacteria count divided by the count of bacteria-laden particles, may be a useful index of dustiness rather than infectiousness of air.

These procedures merely characterize dust in routine analysis, for droplet nuclei seldom carry more than a negligible fraction of the total number of air-borne bacteria. Their genesis in the respiratory system, however, gives hygienic significance out of all proportion to their number, and necessitates means for distinguishing them from dust. Generally they contain organisms typical of the nasopharynx—lactose fermenting, Gram-positive, hemolytic streptococci. These organisms grow well on blood agar; but dilution methods analogous to those used for isolation of coliform organisms in drinking water are more sensitive. Air-borne organisms, collected in liquids, are distributed into enrichment broth tubes exactly as in testing drinking water, the presence of acid rather than gas in lactose being presumptive evidence of pollution. Hemolytic organisms are confirmed on blood agar containing enough gentian violet to inhibit staphylococci. The method of enumeration is similar to that applied in water analysis.

The growing recognition of air-borne infection as a basis for a theory of contagion has revived interest in sanitary ventilation. Just as bacteriologic procedures guided the development of water purification practice, so will they evaluate air disinfection processes. The rate of disposal of droplet nuclei infection can be measured by sampling standard suspensions of organisms atomized into air at a constant rate. Ventilation rates are proportional to the equilibrium concentrations, one dieaway rate being determined by successive samplings. Compared to the amount of pure air replacement required to effect equal removal of the organisms, results express disinfection in terms of equivalent ventilation. To estimate disinfection against pathogenic organisms, relative vulnerability is determined in the laboratory against the standard organism.

Interpretation of the data is also subject to statistical limitations. Single determinations have little significance; fluctuations in occupation load in ventilation are greater than in pollution of drinking water. The hygienic quality of air, as in water, is an abstraction derived from a statistical analysis of a large number of samples obtainable only with a practical routine.

SAMPLING

It is generally conceded that, "There is no simple method that is optimal for all circumstances and species, and some degree of compromise is necessary." For our purpose, an air sampler must be capable of concentrating small numbers of nuclei from large volumes of air (a person breathes several cubic feet of air per hour) upon solid culture media or in small volumes of liquid. Phelps, in a careful analysis of the mechanism of deposition in the centrifuge, "operating between 4,000 and 5,000 r.p.m. with an air flow of approximately 1.4 to 1.9 cu. ft. per min.," recovered approximately one-third of the nuclei settling "approximately 22 inches per hour." Substituting this value of centrifuge performance in his equation, or a formula simplified by assumption of turbulent flow (Wells, 1943), gives for rated flow of 1 cu. ft. per min. and density of 100 particles per cu. ft. the "Volume Count" shown on Chart 1. Approximately one-half of these smaller nuclei and practically all particles settling more than 2 in. a minute (probably more representative of nuclei coughed or sneezed into the

atmosphere) would be collected according to this formula.

Complete collection of the smallest bacteria-bearing nuclei, rarely required, can be accomplished by reducing the flow of air or increasing the speed of the centrifuge. The rated flow is a practical compromise between complete recovery of the smallest laboratory nuclei capable of bearing a bacterial cell and the distributed collection of dust-borne bacteria on solid media satisfactory for counting. The settling velocity of droplet nuclei encountered in ventilation practice lies between these values, and their recovery by the centrifuge is practically complete.

A careful study of impingement methods developed for collection of fine industrial dusts (Bourdillon, Lidwell, and Thomas, 1941) has established the necessary velocity of particles of bacterial dimensions (through slits at optimal distances from the agar surface) to be 334 ft. per min.; sampling efficiency falls rapidly at lower velocities—dropping to one-fifth as the velocity falls to one-fourth. The slit sampler, satisfying these conditions, recovered from three to five hundred times as many fine broth spray nuclei from 10 cu. ft. of air as settled on a Petri plate in 10 minutes. The authors conclude, "This range of over 200 to 1 on the slit Petri ratio is very striking proof of the selective action of open dishes when used for collecting bacteria. It is probably safe to say that such dishes are at least 200 times as effective for collecting large bacteria-carrying particles as for single washed air-borne bacteria."

All samplers except the centrifuge require auxiliary equipment to draw measured quantities of air through the instrument. Convenience is important in collecting large numbers of samples, and the convenience of the centrifuge—creating its own measured air flow and depositing both dust and droplet nuclei directly on solid or in fluid media—recommends it for field use. To obtain uniform results it is necessary to standardize on some method, even if it be acknowledged that no method can be most satisfactory for every purpose. The subcommittee, therefore, tentatively recommends the centrifuge, because of its simplicity, adaptability, and convenience, for practical sanitary air analysis.

CULTURE

It is also conceded that, "The efficiency of any sampling method is measurable only in terms of the optimum cultural technique for each bacterial species present and for each variation in the material under test." Most dust organisms are saprophytes which grow well on plain culture media. In determining the count either of bacteria-bearing particles or of total organisms, the subcommittee has adopted media used by the New York State Department of Health in sanitary analysis.

Though nasopharyngeal parasites—specifically hemolytic streptococci of the nose and throat—are more fastidious, they grow well in media containing proteose and tryptose. Blood agar containing these ingredients becomes selective with the addition of 2 p.p.m. of gentian violet, which inhibits most common staphylococci in air; it is hardly necessary to complicate the medium with substances for inhibition of Gram-negative organisms—most of which are short-lived in air. Organisms enriched in proteose-tryptose broth, containing lactose and brom thymol blue to indicate acid production, and also ¼ p.p.m. of gentian violet to inhibit staphylococci, may be transferred to selective media for confirmation. Tubes showing acid in 24 or 48 hours are streaked on the gentian violet blood agar, hemolytic organisms being further confirmed as Gram-positive.

SUMMARY OF STANDARD BACTERIOLOGIC PROCEDURES

I. Density of bacteria-bearing dust particles
  A. Area count per sq. ft. per min.
    (a) 15 min. Petri dish count (rough approximation of bacteria-bearing dust particles per cu. ft.).
  B. Volume count per cu. ft.
    (a) Slit sampler
    (b) Air centrifuge, solid media

II. Settling velocity (ft. per min.) Vg=A/B
    (a) Particle diameter in microns = $13\sqrt{Vg}$

III. Total bacteria per cu. ft.
  C. Amer. Public Health Assn. methods
    (a) Washings from filtration
    (b) Air washers
  D. Air centrifuge
    (a) Collection in liquid

IV. Average number of bacteria per particle = C/B or D/B

V. Dust-borne pathogens
    (a) Beta hemolytic streptococci on blood agar plates

VI. Median volume per bacteria-bearing droplet nucleus
    (a) Direct count of alpha hemolytic streptococci on blood agar
    (b) Median sample volume containing lactose-fermenting hemolytic streptococci by dilution method

VII. Measurement of sanitary ventilation by sampling at center of room test organisms atomized into four quadrants
    (a) Dieaway method
    (b) Equilibrium method

INTERPRETATION

Information obtained by items I to V characterizes bacteria-bearing dusts; the determination of volume and area counts (by I), and their ratio (by II), determines settling velocity and particle diameter. Coarse dust particles indicate atmospheric turbulence rather than dust accumulation, and the presence of particles with high settling velocity indicates activity in a room; so area and volume samples should be taken simultaneously.

The "total" bacteria per cu. ft. (by III) indicate on the other hand dust accumulation as well as air disturbance. Bacterial masses in dust fragments from contaminated fabrics, or dirt tracked into the room on shoes, are indicated by high average number of bacteria per particle (IV). Where dust arises from infected persons, clothing, or bedding, as in hospital wards and to a less degree in barracks where men are housed under crowded conditions, dust may have special significance. This index of air dirtiness may be useful in judging the efficiency of dust suppressive measures.

The determination of beta hemolytic streptococci on blood agar plates (by V) has received considerable attention in recent years. Compared with the total number of streptococci determined by dilution methods, beta hemolytic streptococci collected on plates may provide additional information upon sources of infection. Also the epidemiology of air-borne infection, in so far as the clinical pattern is determined by the penetration of particles into the respiratory system, depends upon particle size as indicated by settling velocity.

Breathing droplet nuclei constitutes prima facie evidence of the exchange of respiratory organisms—the principal hygienic hazard of confined air. This measurement of occupation load upon ventilation by special techniques is a major task of sanitary air analysis. The test for respiratory organisms (by VII) in breathing air will, as did the test for intestinal organisms in sanitary analysis of drinking water, therefore become the most useful bacteriological procedure in ventilation surveys of public gathering places—movies, schools, department stores, factories, and other places of work and recreation.

Evaluation of methods of control of air-borne contagion will ultimately be based on measurement of sanitary ventilation (by VII) after threshold sanitary ventilation has been established epidemiologically.

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New Levels of Professional Compensation Set in Veterans Administration

Public Law 293, now in effect in the United States, creates in the Veterans Administration, Washington, a Department of Medicine and Surgery under a chief medical director. Major General Paul R. Hawley, M.C., U.S.A., has been designated to serve as Chief Medical Director. Professional personnel is set up under the Chief Medical Director in an organization resembling the corps service of the Army, the Navy, and the Public Health Service. General Bradley, the chief of the Veterans Administration, has announced that there is an immediate need for 1,125 physicians, 1,200 nurses, and 100 dentists.

Public health workers will be specially interested in the salary levels set for these clinical specialists. The chief medical director will receive $12,000, a deputy medical director will receive $11,500 and eight assistant medical directors will be paid $11,000 each.

In the medical service the Chief grade carries salaries $8,750 to $9,800; Senior grade $7,175 to $8,225; Intermediate grade $6,230 to $7,070; and the "Full grade" $5,180 to $6,020, with Associate and Junior grades at lower levels.

Appointments of the executives will be for a four year term, subject to removal by the administrator for cause. Specialists certified by the Veterans Administration may be paid a salary up to a limit of $11,000. Promotions will be made on recommendation of special Veterans Administration boards, which will operate like the selection boards of the Army and Navy for higher ranking officers.

This plan will also involve setting up a series of residencies in Veterans Administration hospitals where younger physicians may qualify to become specialists. It is believed that this will serve to raise substantially the quality of medical care available to veterans and it will be similar to the system now in effect in the larger medical centers.

Microbiological Examination of Foods*

Tentative Methods for the Microbiological Examination of Frozen Foods

Food and Nutrition Section

THE processing and use of frozen food products has increased to large proportions and, with the perfection and availability of freezing and storage facilities, should continue to increase. The following tentative drafts represent methods which have proved workable and, while by no means complete, will form the basis for the perfecting of standard methods for frozen foods. Modifications and improvements will be effected as more experience in this field is gained.

In testing frozen vegetables for microbiological content, consideration must be given to the fact that freezing storage at temperatures of approximately —10° F. (—23° C.) brings about a reduction in viable microörganisms. This may amount to roughly 50 per cent in 6 months or 75 per cent in 1 year. Thus, while a high bacterial plate count on frozen vegetables may be taken as proof of poor sanitary history, a low or moderate count does not by itself prove the opposite.

It is recommended that in the preparation of samples of frozen fruits and vegetables for microbiological analysis a mechanical "blender" be employed. This has been arrived at after considerable experience with various methods of preparation on a wide variety of frozen products. In comparison with washing or hand grinding the mechanical disintegration will, as a rule, yield higher bacterial counts. However, more uniform results will be obtained, and the method is less laborious. Similarly the choice of tryptone glucose extract agar rests on the demonstrated superiority of this medium over nutrient agar or glucose agar, although glucose agar as a medium for frozen peas appears to be only slightly inferior.

Examination of Frozen Vegetables—Selection, transportation, and storage of samples

Select from the lot to be examined a suitable number of packages, say 3 or 4, from each code lot of the pack. Transport in dry ice to the laboratory for analysis and place the samples in a refrigerated (0° F.) storage chest until they are to be analyzed. The temperature preferably should not rise above 0° F. (—18° C.) in the handling of the material.

Preparation of Sample:

A. Peas, Lima Beans, Cut Corn, Whole or Regular Cut Green Beans, etc.

1. *Macroscopic examination* — Open the package and note condition of the product, especially if ice crystals are present on the inner walls of the package and the vegetables appear to be somewhat shriveled. This condition is indicative of thawing and subsequent refreezing. Record observations and any abnormalities, such as unnatural color or odor, or pink colonies of torulae which are indicative of improper handling practices.

2. *Sampling for plate counts*— The sample, if not loose-frozen, should

* Report of the Committee on Standard Methods for the Microbiological Examination of Foods.
COMMITTEE ON MICROBIOLOGICAL EXAMINATION OF FOODS.
Organized 1932. Published reports: *Year Books*, 1935–1936, 1937–1938, 1941–1942, *J.P.H.*, June, 1943; August, 1945.

be broken up into small units. This can be done by tapping the unopened package sharply against the table edge or by sharply striking the package with a dull instrument, being careful not to break open the package. After opening the package remove sample with sterile spoon, taking the sample from various parts of the broken out package—e.g., from the center and corners.

A 50 gm. sample is aseptically weighed into a sterile borosilicate glass mechanical blender jar; 450 ml. of sterile water is added to the jar and the contents of the jar blended for 2 minutes. If a Variac transformer is available it is advisable to increase the speed of the motor gradually and then run the blender for the required time at the 110 V. setting of the transformer.

Allow the sample to stand for 2 to 3 minutes to permit foam to subside.

Pipette 1 ml. of the mixture into a 99 ml. sterile water blank. Replace the cap on the dilution bottle and shake the bottle briskly 25 times through a 1 ft. arc.

Pipette 1 ml. aliquots of this mixture into each of two Petri dishes (1:1,000 dilution) and also 0.1 ml. aliquots into each of two more Petri dishes (1:10,000 dilution). A 1:100 dilution may be obtained by pipetting 0.1 ml. aliquots of the original mixture into each of two Petri dishes.

Pour melted tryptone glucose extract agar (pH 7.0) cooled to 45° C. into the Petri dishes immediately, and thoroughly mix the dilution water with the agar by gently rotating the plates in a figure 8 motion with slight tilting of the Petri dish. Cool to harden, invert and incubate at 32° C. for 4 days.

Dilutions of 1:100, 1:1,000, and 1:10,000 will usually suffice for commercially packed frozen vegetables, although further dilutions should be made if the history or the appearance of the samples warrant.

It is of prime importance that the agar be poured immediately after the inoculum is introduced; otherwise many bacteria will adhere to the glass and an inaccurate count will result.

After the incubation period is complete the plates are counted, using a suitable colony counter. Results are recorded as "Plate count of microorganisms per gram."

3. *Direct microscopic count method*—The direct microscopic method has an advantage over the plate count method in that it is quicker and requires less equipment and glassware. Also it detects dead microörganisms, and indicates sanitary history, irrespective of the viable count.

Weigh 50 gm. of the vegetable (peas, lima beans, and cut corn) into a 250 ml. iodine flask.

Add 100 ml. water, stopper flask, and shake briskly 50 times through a 1 ft. arc. Using a Breed pipette, transfer 0.01 ml. of the washings to a microscope slide and, using a needle, spread the drop evenly over a 1 sq. cm. area of the slide. Dry and fix with heat or with methyl alcohol. Stain with Gray's double dye stain,[1] or with North aniline oil methylene blue stain,[2] rinse, dry, and examine under the microscope, using oil immersion. Use an ocular micrometer, such as a Whipple disc or Howard disc, with the microscope tube so adjusted that the side of the graduations is equal to 0.1 mm. (area of field 0.01 sq. mm.). Count the cells in 100 fields, and multiply the number by 20,000 to bring to the gram sample basis. Express results as "Direct microscopic estimate, microörganisms per gram."

In the direct method the following assumptions are made. (A) That all the cells are removed from the surface of the vegetable by the washing, (B) that the suspension of bacterial cells is uniform, and (C) that the drop of liquid is evenly spread over 1 sq. cm.

Interpretation of results — Plate

counts of more than 400,000 per gram of peas or direct microscopic counts of over 1,000,000 per gram may be considered indicative of poor sanitary conditions in the plant, or poor handling practice in transit or in warehousing. In regard to other frozen vegetables it would appear that counts tend to run higher. In vegetable freezing plants plate counts of over 500,000 per gram of newly frozen produce are not encountered unless there is some degree of carelessness in the plant, such as faulty clean-up practice or prolonged holding of the material after blanching.

B. Frozen Spinach

For proper comminution of spinach in a "blender" it is necessary to allow the package of spinach partially to defrost by standing at room temperature for 1½ to 2 hours. Open the package and weigh 50 gm. of the contents into a sterile borosilicate mechanical blender jar. Assemble the sample from various portions of the package, taking care to select petiole and blade portions in about the same ratio as in the sample as a whole. Add 450 ml. sterile water. Blend for 2 minutes, and proceed as in analysis of A, peas, lima beans, etc.

C. Frozen Broccoli and Cauliflower

Allow partially to defrost at room temperature. Using a sterile scalpel, cut portions from the curd and stem of several representative pieces of the vegetable. Aseptically transfer 50 gm. of these portions into the sterile borosilicate glass mechanical blender jars, add 450 ml. sterile water, and proceed as directed for A, frozen peas, etc.

D. Frozen Asparagus

Partially defrost at room temperature. Cut spears into short lengths, using sterilized scalpel. Transfer aseptically 50 gm. of the segments into a sterile borosilicate glass mechanical blender jar, add 450 ml. sterile water, and proceed as in analysis of A, frozen peas, etc. When weighing out sample portions, a number of spears should be selected and the proportion of butts and tips maintained.

The "cuts and tips" type of asparagus pack can be weighed directly into the blender cup.

Examination of Frozen Fruits

Preparation of Sample

Hold the package of frozen fruit at room temperature for 1 to 2 hours before opening in order partially to defrost the contents. While the fruit is still partially frozen, cut portions from various parts of the contents of the package, using a sterilized scalpel. The proportion of fruit to syrup should approximate that of the whole package. Weigh 50 gm. of fruit and syrup into a sterile borosilicate glass mechanical blender jar. Add 450 ml. sterile water, and blend for 2 minutes. Make a 1:1,000 dilution by adding 1 ml. of the blended mixture to 99 ml. sterile water and further dilutions in the usual manner. Plate 1 ml. portions from the various dilutions on tryptone glucose extract agar. Incubate for 3 days at 32° C. Colonies are counted under a suitable colony counter. Record results as "Plate count of microörganisms per gram."

Direct microscopic counts for molds and yeasts are made according to the methods given in *Official Methods*, A.O.A.C.[3] for microscopic analysis of tomato products. Care must be taken to distinguish between mold hyphae and fruit setae.

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LETTER TO THE EDITOR

TO THE EDITOR:

I have been told that a set of Journals representing the numbers of the *American Journal of Public Health* published during the war years, which were lost when our Medical Library was burned during the Battle of Manila, are to be given by the American Public Health Association to the Institute of Hygiene at Manila for the use of public health workers in the Philippines.

May I express our gratitude to the Association and to its members for this demonstration of thoughtfulness which is characteristic of the big-hearted way your people act. While I am in this country I want to say on behalf of my colleagues in the Philippines that the donation is very gratefully appreciated.

Sincerely,

HILARIO LARA, M.D., DR.P.H.
Member Philippine Public Health Association and Philippine Medical Association; Director, Institute of Hygiene, Manila, P. I.

(The Association continues to receive copies of the Journal made available by members for other libraries overseas like those in the Philippines. The Association is constantly being reminded of the enormous value which such Journals have in devasted countries.)

Selective Service Rejection Statistics and Some of Their Implications

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PRESIDENT TRUMAN in his Health Message to Congress on November 19, 1945, reported that the Selective Service System has brought the widespread physical and mental incapacity among the young people of the nation "forcibly to our attention in terms which all of us can understand."

"As of April 1, 1945," the President stated, "nearly 5,000,000 male registrants between the ages of 18 and 37 had been examined and classified as unfit for military service. The number of those rejected for military service was about 30 per cent of those examined. The percentage of rejection was lower in the younger age groups and higher in the higher age groups, reaching as high as 49 per cent for registrants between the ages of 34 and 37. In addition, after actual induction, about a million and a half men had to be discharged from the Army and Navy for physical or mental disability, exclusive of wounds; and an equal number had to be treated in the armed forces for diseases or defects which existed before induction."

These facts are not new, as the President pointed out. Health authorities have been concerned about the serious state of ill health among American youth since late in 1941 when the Selective Service System published its first analysis of the health status of inductees. In this paper it is proposed to discuss the validity of the data as a measure of the prevalence of physical and mental defects and diseases, with particular reference to changes in prevalence which have occurred since 1918. The data will be examined with a view to estimating the significance of these findings to public health.

Rejection rates must be a first consideration in any evaluation of Selective Service findings. These rates varied greatly during the war. In the first year of Selective Service, registrants were given complete physical examinations by local board physicians. Those who were found to be fit were sent to Army induction stations for final physical examination and, on the basis of this latter examination, were accepted or rejected for military service. Rejection rates for this period (November, 1940, through September, 1941) averaged 52.8 per cent of all men examined. Following Pearl Harbor, a marked reduction was noted. This was probably due to pressure on local boards and induction stations for additional military man power.

By January, 1943, the rates reached an all-time low of 28 per cent. They rose gradually during the year, however, reaching a high of 42 per cent during the last four months of 1943. The increase is attributed mainly to: (1) a higher age average among men examined, and (2) a higher proportion of previously rejected men among examinees as local boards reclassified registrants in an effort to meet their quotas.

The decrease in the rejection rate from 42 to 31 per cent by the end of

the first five months of 1944 resulted largely from two conditions. The average age of men examined was lower than in the previous period, and examination facilities at induction stations were taxed by unusually heavy in-pourings of selectees.

Rejection rates began again to increase by the middle of 1944, progressing steadily from 36 per cent in June to 45 per cent in November. The reasons were: induction for limited service was halted in June; and in the same month psychological tests for mental capacity were modified so that some illiterates, who previously would have been inducted, were rejected. Moreover, during this period greater emphasis was placed on the need for inducting men suitable for combat replacements.

These changing procedures affecting the trend of rejection rates illustrate some of the difficulties involved in evaluating the level of national health in terms of acceptance or rejection for military duty. At any particular period the rejection rates tell only the relative number of individuals who did not qualify according to standards of that period. As has been seen, some of these standards had no relation to physical status.

In discussing rejection rates, Col. Leonard G. Rowntree * said: "Rejection rates based upon the number of registrants rejected for military service per 1,000 men examined have limitations in their use as criteria of good civilian health. Rejection rates are dependent upon too many factors, as for instance (1) changes in standards of induction, (2) changing deferment policies, (3) varying numbers of registrants by age, race, urban-rural areas, all of which introduce variables correctable only through the calculation of specific rejection rates, (4) whether a registrant is coming up for the first, second, third, or fourth examination, and (5) how far military standards exceed those required of normal civilian living. Selective Service, therefore, regards the rejection rate per 1,000 men examined as useful in measuring the nation's health only in terms of the limitations placed upon such rates. The incidence of all recorded defects in accepted and rejected men is a better index of the health picture. The latter is only limited in so far as all defects may not be recorded."

In addition to this limitation, however, there are other elements that must be considered in any attempt to arrive at a true evaluation. These include differences in examining techniques at various examination centers, idiosyncrasies of the examining personnel, and the attitudes of the examinees.

A comparison of the reports for November, 1940, through September, 1941, and for April, 1942, through December, 1943, illustrates the effects of these factors on Selective Service findings of the prevalence of disease and disability.

In the first report 1,583.3 defects per 1,000 men examined were recorded; in the second, 1,000.2 defects for each 1,000 examinees. Between the two periods, the coding procedures were changed so that the complete list of defects was not always available in the 1942–1943 data. Since the defects were summarized in order of significance, the limitations of coding would result in the omission of less significant defects and account, at least partly, for the drop in rate.

The effect of such omission and of the other stated factors can be gauged by a comparison of rates for specific kinds of defects. For example, in 1940–1941 when the coding was more complete and when flat feet were a cause for rejection, foot defects, with an average of

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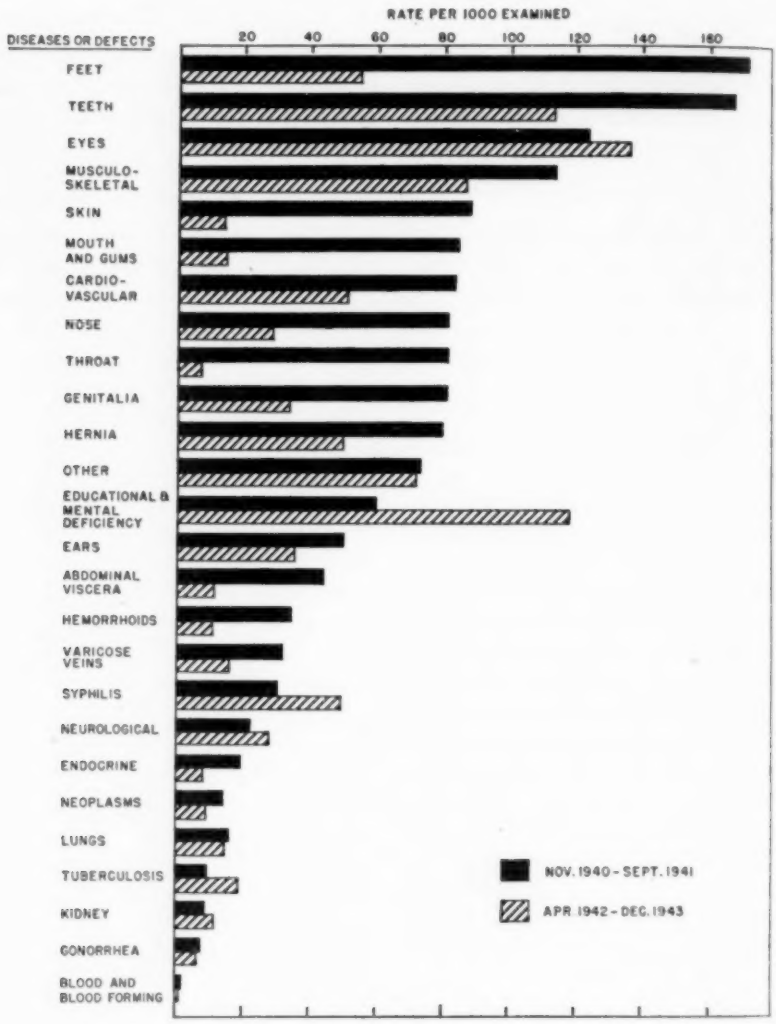

FIGURE 1—Recorded frequency of defects and disease reported among Selective Service registrants examined during November, 1940–September, 1941, and April, 1942–December, 1943

172.4 per 1,000 men, led the list of disabilities. By 1942–1943, however, minor foot ailments were considered unimportant, and reporting on this category fell to 54.6 per 1,000 examinees. Similarly, dental defects — averaging 167.8 per 1,000 men—were second highest among defects listed for 1940–1941. By 1942–1943, the incidence had fallen to 113.0 per 1,000 examinees. This, likely, was due to the failure of examining personnel to record all cases of carious or missing teeth, or to give dental defects sufficient precedence for inclusion in the coding, since these defects no longer were cause for deferment.

Marked decreases also are found in the prevalence of throat diseases, skin diseases, and defects of the abdominal viscera as the need for more military personnel grew urgent and examining

physicians tended to concentrate on the more serious defects. The relatively minor conditions were included as secondary defects only and thus omitted in the coding.

On the other hand, reports of important defects remained fairly constant in 1942–1943. Eye defects, for example, varied only slightly in the two periods. There also was little change in the reported prevalence of neurological diseases, or of diseases of the lung, kidney, and ear. A large proportion of conditions in these groups of defects were outright causes for rejection; and reporting, necessarily, was fairly complete.

The great increase in the incidence of tuberculosis (9.7 to 19.1) is accounted for largely by a change in examination procedure. Chest x-rays did not become an examination routine until 1942; therefore, it is reasonable to suppose that many cases of tuberculosis among pre-Pearl Harbor inductees passed through examining stations undetected.

The wide variations in reports of educational and mental deficiency recorded for the two periods are easily traceable to different definitions of "educational deficiency" in effect during the two periods. Between November, 1940, and May 15, 1941, regulations stated that registrants were acceptable who "appear to have normal understanding, whose speech can be understood, who have no definite signs of organic disease of the brain, spinal cord or peripheral nerves, and who are otherwise mentally and physically fit." During this period, illiteracy was mentioned in the records of 3.6 registrants per 1,000 examined. On May 15, 1941, however, the standards were raised to require that a registrant should be able to "read and write the English language as well as a student who has completed four years in an American grammar school." These standards remained in force until April 1, 1942. As could be expected, rates for educational and mental deficiency rose in the period.

Mental disease, which was high among the more serious defects in both periods, was found in 67.5 men out of every 1,000 examined in 1942–1943. At the top of the list among these diseases were psychoneurotic disorders, psychopathic personality, and grave mental or personality disorders. Since serious attention was given by examining physicians to evidence of mental disease in both periods, and since the reports for the periods are consistent, it could be concluded that reporting and coding of the incidence of mental disease was fairly accurate.

These comparisons bring out the fact that the order of defects may have been closely associated with prevailing regulations for the rejection or acceptance of examinees for military service. The judgment of the individual examiner in evaluating the relative importance of a series of defects also must be considered as a factor in determining the listing. It is likely, then, that reporting on many defects varied as Selective Service regulations changed; that recording of secondary defects tended to be overlooked as coding procedures were simplified, and that the opinion of examining physicians in classifying defects according to relative importance was associated to some degree with military standards.

Review of the figures leaves little doubt that the findings for 1940–1941 more clearly approach the actual prevalence of defects, although how close that approach is can only be guessed. There seems reason to believe that the figures present a fair picture of the prevalence of major defects—with allowances made for variations in examining techniques, in the judgment of examining physicians and in the recording and coding of defects. It also seems obvious that the many factors which

influenced the recognition and recording of secondary defects detract from the accuracy of the reports.

None of the factors which have influenced the reporting and coding, however, obscures the enormous volume of defects. Since all defects—whatever their nature or degree of concern to military authorities—are of importance to the individuals affected, the findings of Selective Service pose a public health problem which must be solved before good health can be achieved for the population.

Too much emphasis is still placed on the decline in mortality as a measure of achievement in health work. Death is by no means the sole measure of the level of national health. To raise the health level, it is essential that increased attention be given to preventing and curing those conditions which cause illness or which reduce the capacity of the individual.

Since the last war the national mortality rate has declined by 3.1 per 1,000 population. Among young men 20 to 34 years, the death rate has gone down nearly 30 per cent. One could feel more complacent if this reduction in mortality were associated with an equal reduction in disability. But such is not the case as comparison of the findings in World War I with those of World War II illustrates.

Reports on the prevalence of defects in the first war show that 661.9 defects were recorded per 1,000 men examined —in contrast to 1,000.2 defects per 1,000 in 1942–1943 and 1,583.3 in 1940–1941. Just as the differences between the 1940–1941 and the 1942–1943 data are due largely to the coding of the diseases, so it must be suspected that failure to record many minor defects in World War I accounts for a major part of the discrepancy in the records of the two wars. In addition, differences in the medical terminology of the two periods make it difficult to determine the exact classification of defects in many instances. Diagnosis of a number of diseases also underwent refinement in the interval between wars.

As a result, although wide variations in some general groupings will be noted, differences in specific categories, where similarity in terminology permits comparison in the two periods, are not always as great as might be expected. Among diseases of the eye, for instance, 61.0 defects per 1,000 men examined were found in 1917–1918, against 123.5 in 1940–1941. Yet for bilateral and unilateral blindness—an easily defined defect which can be assumed to have been reported in the same category for both wars—the difference is small. Similarly, there is only small variation in recordings of the incidence of trachoma and the slight decrease noted in 1940–1941 may point to some public health accomplishment in the conquest of this disease.

Increased medical knowledge is a factor that cannot be overlooked in comparing the incidence of a number of defects. This is particularly true of asthma, cardiovascular disease, and venereal disease. Since diagnosis of these conditions is much more frequent throughout the population today than twenty years ago, it follows that the incidence among a selected group in 1940 should be greater than in 1917.

Variations in the incidence of tuberculosis are of especial interest since examination procedures in effect in 1940–1941 more closely approximated those of 1917 than in any other period of World War II. Moreover, the decline in incidence rates for the two periods bear fairly close resemblance to the drop in the national tuberculosis mortality rate between 1920 (113.1) and 1940 (45.9). Since the incidence of tuberculosis increased markedly with the inauguration of chest x-rays as an examination routine—moving to 19.1 per 1,000 men in 1942–

TABLE 1

Prevalence of Certain Recorded Defects Among Drafted Men, World War I[1] and World War II[2]

Diseases or Defects	Rate per 1,000 Men Examined			
	World War I		World War II	
All diseases or defects	661.9[3]		1,583.3[3]	
Eyes	61.0[3]		123.5[3]	
Blindness, bilateral and unilateral		7.5		6.5
Trachoma		1.2		0.5
Defective vision		46.3		83.3
Ears	15.4[3]		50.1[3]	
Defective hearing		7.1		9.4
Otitis media		7.3		8.3
Asthma	2.3		5.4	
Hypertrophic tonsillitis	33.8		44.1	
Tuberculosis (all forms)	24.7		9.7	
Cardiovascular	50.2[3]		83.1[3]	
Valvular diseases of the heart		29.6		12.7
Cardiac hypertrophy		4.2		2.8
Tachycardia		5.0		6.7
Hernia and inguinal rings	55.4		79.7[3]	
Hernia		27.6		34.8
Enlarged rings		27.8		34.4
Venereal diseases	46.7		38.1	
Gonorrhea		36.0		7.1
Syphilis		9.5		30.8
Chancroid		1.2		0.2
Varicose veins and varicocele	8.8		32.1	
Mental deficiency		12.2		15.3
Epilepsy		3.9		3.7
Mental alienation		3.8		16.3
Crippled or paralyzed members		48.7		76.8
Lost members:				
Upper extremities				
Fingers		7.6		7.1
Other		1.6		1.5
Lower extremities		4.6		3.6
Flat feet		104.4		162.0
Curvature of the spine		7.7		15.0

[1] From Table 4 in Britten, R. H., and Perrott, G. St. J., Summary of physical findings on men drafted in the world war. *Pub. Health Rep.*, 56:41–62, 1941.

[2] From Table 7 in Selective Service System, Causes of rejection and incidence of defects. *Med. Stat. Bull.* No. 2 (Aug. 1), 1943.

[3] The sum of the rates for specific categories of defects does not always add to the rate for the general category because of the omission of specific categories not comparable to the two periods: World War I and World War II.

1943—it seems evident that (1) considerable tuberculosis went undiscovered in 1917–1918, and (2) that the incidence of the disease actually was lower in 1940 than twenty years previously.

Loss of members is an obvious defect that cannot be influenced by any of the elements affecting reporting or diagnostic procedures; therefore, these figures can be accepted at face value. The great similarity in rates for this type of defect, as well as for others which are easily observed, leads to the conclusion that the prevalence of a number of defects in 1917 was probably about the same as in 1940–1941.

Certainly, evidence of great improvement is not reflected in the comparison. While slight decreases may be indicated in the incidence of a few defects and diseases over the twenty year period, they are too small to be proof of progress. Examination of the findings of World War I and World War II, then, seems to attest to the conclusion that the health level of the American people

has not improved in the same degree as mortality for at least two decades.

The central fact remains that the findings of both wars show an enormous amount of ill health in the population.

During and after the first World War, draft data were reviewed, analyzed, and interpreted. Over the ensuing years, medical statisticians decried the low level of health among the nation's young men and viewed the situation with alarm. It is regrettable that the papers produced by these statisticians represent the sole use to which the findings of World War I were put.

Now, once more, protests are being raised against the health level—this time based on the amount of defects found among the sons of World War I examinees. It is to be hoped that the implications of these latest wartime health reports will be regarded as an index of the degree of actual need and will be utilized in planning health services which must be supplied to bring to oncoming generations the benefits of knowledge already at hand.

Reports of defects found among young men examined for military duty in World War II can serve as signposts to health authorities in plotting future activity. Much of the past achievement in public health has been due to the application by health departments of epidemiological case finding techniques to the control of disease spread. Selective Service data make available a new source of information for evaluating the relative extent of particular physical and mental defects.

The President in his recommendations to the Congress for the establishment of a National Health Program has used the reports on medical examinations of selectees to gauge the total health needs of the country. Nation-wide programs for the prevention and cure of tuberculosis, venereal diseases, and other communicable diseases are now authorized by the Congress. State and local health authorities can use Selective Service findings to ascertain where existing programs should be strengthened and what additional services are required. In the past, health authorities have turned to mortality rates as a major index for determining problems of public health significance. The limitations of these rates in evaluating health needs have been recognized. Knowledge provided by mortality statistics is confined to deaths resulting from specific diseases. A well organized attack on the whole health front requires comprehensive and current information on the prevalence of disease and defects—in short, complete morbidity reporting in every state. In lieu of this, Selective Service data, while not so accurate, offer an immediate and potent source of information on the prevalence of those defects which it is within the province of public health to prevent or remedy.

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Chronic Disease: A Problem That Must Be Faced*

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THERE are few major problems in the field of medical and social need about which there is more universal agreement and, yet, about which less actually is being done than that of the care of the chronically ill.

The fact that this need has existed so long and that the deplorable lack of adequate facilities for the care of the chronically ill has not evoked more attention may be explained, in part, by the gradual shift in our pattern of domestic life from that of a predominantly rural population in which we were inclined and able to take care of our needs in our own homes to that of urbanization, industrialization, and crowded housing; in part, by the steady increase in the age of our population resulting in increasing opportunity for the development of the so-called degenerative diseases and other diseases associated with age, such as cancer; and, in part, by the unfortunate fact that the chronically ill are, generally speaking, unable to organize so as to bring about the fulfillment of their needs. There are, of course, other factors involved; these are merely illustrative.

As might be expected under the circumstances, the efforts of communities to meet this growing problem have resulted in developments on a more or less haphazard pattern.

Today we are approaching an era of medical social enlightenment when, perhaps for the first time, we may expect to see the meeting of minds and unification of purpose necessary to an integrated approach to this complex problem. There are abundant signs: the broadening of our social security provisions, the increasing concern for all of the basic needs of our population, and the new understanding of the social forces in illness and disease and concepts for their prevention.

The undesirable conditions being called to our attention at the present time, exemplified in the very inadequate facilities for the care of the chronically ill in many county home infirmaries and nursing homes, do not necessarily constitute a condemnation of our social system if understood in the light of their origin, but they would constitute a condemnation of it were they allowed to continue. In some areas steps actually have been undertaken to meet these needs, but, generally speaking, these steps have been restricted to specific communities and groups where rather specialized circumstances obtain or to only a few of the essential phases of a complete program. They do not provide us with the complete pattern or the means for answering the total needs of the chronically ill, be they

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rich or poor, urban or rural, young or old, or of one religion or another.

For planning purposes, some sort of a definition of chronic illness seems to be required. Certainly definition is essential for understanding the significance and comparability of the limited data available. For example, the National Health Survey [1] defines chronic disease as "a disabling or non-disabling chronic pathological condition known to the informant, the symptoms of which had been recognized for at least three months." There are obvious flaws in this definition. A patient with newly recognized and diagnosed diabetes or rheumatic heart disease would not be eligible for inclusion under this definition until three months had elapsed. But, for practical purposes, it is difficult to make a definition that does not have flaws.

When it is estimated, on the basis of the National Health Survey,[2] that 25 million persons, or one in every five persons in this country, has a chronic disease, we are not particularly impressed for we know that many of us are included in this group but that we get around somehow in spite of it. When we learn that it is estimated that over 1.5 million persons are permanently disabled from chronic diseases (exclusive of those confined to long-term care in mental or tuberculosis hospitals), that almost one billion days each year are lost from work or other usual pursuit because of chronic illness, and that more than three-quarters of the chronic disease cases are among persons in the productive years from 15 to 64,[1] we are undoubtedly more impressed—but still not moved to action.

But there are other ways of learning that there is a problem and what the nature of the problem is. Visits to the wards of a few large general hospitals, conferences with social workers who are desperately trying to find places for the chronically ill, visits to county homes, talks with welfare officers, with public health nurses, or with almost any physician, are more substantially convincing of this unmet need than cold figures that are so difficult of interpretation.

There is no intention to detract from the importance of studies and surveys. They have a most essential rôle. Significant and excellent studies have been made nationally as mentioned [1]; locally, such as the studies of Boas [3] and Jarrett [4] in New York City, and of Jarrett [5] in Cleveland; at the state level, such as the study of Bigelow and Lombard in Massachusetts in 1929–1931,[6] the 1944 report of the Public Welfare Council of Connecticut,[7] the report in 1932 of the New Jersey Department of Institutions and Agencies [8]; and there are undoubtedly others. These constitute valuable documentation of the need and undoubtedly have given and are continuing to give important support to public action. It is doubtful, however, that they can determine it.

The point that should be made is this: those of us who are faced with the problem of doing something for the chronically ill today probably would be poorly advised to start with a survey to determine the specific character and extent of chronic disease in our respective areas. There would be danger of getting "bogged down" in a time consuming project which really would not add much to what has already been demonstrated adequately. Certain fundamental services for the chronically ill are obvious and beyond question as to their value and need. It would seem, therefore, to be good sense to start with them and to provide them. At first, this should be done in a small way, well within the limits of what is known to be needed. Step by step thereafter, further progress should be made as needs and relationships define themselves. The end result will be:

first, that something will be done to meet this need—and a few enlightened places are already ahead of most of us in this respect—and second, that we shall finally accomplish a program that is thoroughly practical and thoroughly consistent with other related programs and services. In other words, the question resolves itself into one of the fundamentals of program planning and development.

First, the objectives must be established. What areas and what groups of the population are to be covered? Generally speaking, it would seem that this is a proper field for state-wide action. The inadequacies in existing facilities for the care of the chronically ill are about as great for those of modest means, or even the well-to-do, as they are for the poor. The planning for facilities and services of high standard should embrace the needs of everybody. The question of paying for them can and should be dealt with separately. In this latter connection, the potential economic relief that may be achieved from medical care insurance should not be confused with the equally great need for an improved distribution of facilities and services and the maintenance of their quality. Insurance *per se* will make little contribution to either of these.

If the matter of definition cannot be avoided, and it probably cannot, an attempt should be made to make it as flexible as possible. Actually, not everyone with a chronic illness is ill in a functional sense; and, while it might be a fine thing to have each one registered and under medical observation, such certainly should not be an early objective of a program.

Therefore, an administrative definition of chronic disease suggests itself as follows: A disease that may be expected to require an extended period of medical supervision and/or hospital, institutional, nursing, or supervisory care. Such a definition would be utterly useless in obtaining prevalence data; yet it embraces the problem in terms of services needed, and it is with these that we are primarily concerned. It is, indirectly, a functional classification. If a functional classification were possible in all categories of chronic disease, such as that prepared by the Criteria Committee of the New York Heart Association for the classification of heart disease, chronic disease morbidity data would acquire a new meaning.

Second—and this point cannot be emphasized too strongly—planning for the care of the chronically ill should be considered as a most important segment of, and in no way separable from, planning for medical, preventive, and health service as a whole.

There is a strong tendency to approach the problem from a traditional point of view and to consider it a matter of public assistance. It has very real public assistance aspects. These must be fully recognized; but it would be most unrealistic today to undertake to develop divided medical and health services for this or any other area of medical need on the basis of whether the patients themselves are to pay for service, or whether someone else is to pay for them. The medical and health needs of the poor, the near-poor, the well-to-do, the civilian and the veteran, the laborer and the farmer are quantitatively and qualitatively one entity; and good planning will recognize them as such. As has been pointed out already, this principle bears no obligation to the controversial problem of who is going to pay for the service. It bears a distinct obligation, however, to the problem of administrative structure.

Also, there is a tendency to approach the problem of chronic illness as though it were medically isolated—one that indicates the construction of distinct institutions for the care of the chronically ill—much as was done for the

care of the tuberculous and the mentally ill. Yet, many authorities in these two fields are now openly critical of their earlier judgment and see their problems as specialized parts of, but not remote from, those of medical and hospital care as a whole.

In the light of the current emphasis on the construction of coördinated hospital and health center facilities and the very real prospect of national and state legislation and planning, it certainly is urgent that the needs of the chronically ill be kept in mind. It is equally urgent that those planning for the care of the chronically ill, if they happen to be a jump ahead of the state master plan, make their plans adaptable to the fundamental future pattern.

Because we felt so strongly about this and believed that a plan for the care of the chronically ill in New York State * should be fully adapted to a long-range plan for all services, our first attention was given to a study of logical grouping and regionalization of medical services as a whole.[9] We have defined five natural, primary medical centers in New York State and tentatively visualized the areas which they most logically would serve (Map 1). Also, entirely tentatively, we have indicated the possible localization of so-called secondary medical centers which correspond to the district hospitals in the plan devised by the U. S. Public Health Service and presented in the so-called "interim report of the Pepper Committee" in January 1945.[10]

The fundamentals of this general plan for the integration of hospital and health facilities in a qualitative relationship are well known. It has stood

* Reference is to the Plan for the Care of the Chronically Ill being developed by the New York State Health Preparedness Commission.

MAP 1

Suggested Health Service Districts and Primary Centers Proposed by the New York State Health Preparedness Commission, June 1945.
District boundaries
Primary centers
General hospital with bed capacity of 100 or more and approved by American Medical Association, March 1945.
Map prepared by the New York State Health Preparedness Commission, June 1945.

the test of a good deal of thinking and discussion as well as a certain amount of practical demonstration, and it should be kept in mind in planning for the care of the chronically ill no less than in the planning of any other medical and health service.

With the recent appointment by Governor Dewey of a Joint Hospital Board for New York State, which is to conduct a survey and develop a state-wide plan for hospital and health center facilities, our planning group has turned over this phase of its work to the new board and we shall look to them for further guidance. The essential point is that we shall integrate our plans with theirs. Similarly, the value of and need for such integrated planning must be impressed upon all communities of the state in order to assure as much lasting benefit as possible from the post-war hospital, county home, and other institutional construction mania that have seized upon us.

Third, the general character of the services required must be agreed upon. There are different levels of need in relation to the care of the chronically ill, and not all of them can be handled in an identical manner. Three levels have been suggested by Boas [11] as follows:

1. Diagnosis and treatment
2. Skilled nursing care
3. Custodial care or home care

It would be extremely difficult to predict the distribution of the chronic disease case load among these three levels of service for any given community. There is bound to be considerable overlapping. For example, patients in nursing institutions or county infirmaries unquestionably will shift in medical status and will require more intensive care in the hospital for short periods. On the other hand, some may improve and require no nursing supervision. Hence, provision must be made for reasonable interchange, and prediction of the case load would be difficult unless precise criteria first could be established for the admission or transfer of patients from one category of care to another. It seems quite obvious that this could not be done arbitrarily and, if done at all, should be sensitive to variations in the local situation that relate to it.

It is hard to decide just what type of hospital facilities are most needed. One point is certainly clear, however, and that is that under present conditions there are not sufficient beds for the hospital care of the chronically ill, and general hospitals do not like to take or keep them.

Without any intention of being dogmatic about a subject concerning which there undoubtedly is room for argument, the following suggestions, which seem to have much in common with the recommendations of Bluestone,[12] are set forth as seeming to be desirable:

1. The chronic disease hospital, as distinct from a nursing or custodial institution, should be located in a medical center offering all essential diagnostic skills and facilities.

2. The chronic disease hospital should be an integral part of a general hospital, physically close to it, but administratively reasonably independent. There should be complete identity of medical staff and interchange of resident physicians.

3. The chronic disease hospital should offer services and facilities of very high quality to everybody requiring such. The basic standards should be determined, in the first instance, by the State, and, beyond that, through such additional requirements as local circumstances shall permit and as shall be determined locally.

4. In general, patients should be kept in the chronic disease hospital for relatively short periods for the purpose of diagnosis and intensive therapy, or for longer periods of time if desirable for study, research, or rehabilitation.

5. The second level of care should be provided in decentralized institutions conducted as nursing homes or infirmaries. These should have sections for custodial care, or be closely associated with units operated for custodial care. It would be difficult to separate these two levels completely because of

the shifting of many patients back and forth between them. Moreover, the current pattern for administration of both levels, usually under the welfare departments, is deep-seated and there would seem to be no reason for changing this unless it should prove unworkable.

It hardly need be pointed out that, with respect to technical interest and skilled supervision and care, the chronically ill will nearly always suffer in contrast to the acutely ill when they are side by side in the hospital. The acute problem is more dramatic; it moves faster; it demands and gets more attention from physician, intern, nurse, and student alike. Yet there is no reason why chronic disease should not be made technically interesting. In fact, it must be if we are to attract people to research in this field and provide essential teaching material with a view to preparing the doctor of tomorrow to carry on with his work. Remember that an increasing amount of his work must be in the field of geriatrics.

The outstanding lacking requisite for obtaining interest in chronic disease that is comparable to that in acute disease, would appear to be the provision of a sufficient volume of material. Just as long as the chronically ill are scattered here and there among general hospital cases, their individuality as an intriguing medical problem will be lost. If they are properly grouped in large enough numbers to compensate for the slow motion of the individual case, a field of great clinical and research importance and interest should result. It should be followed by better care, improved methods and knowledge, and a better and more keenly interested medical profession.

At the second level of care, that is, nursing homes and infirmaries, there would seem to be equally great need for new thinking. Generally speaking, the medical and nursing standards in nursing homes, county homes, and poor farm infirmaries are inadequate. In fact, it is no exaggeration to say that they frequently have been found to be little short of disgraceful vestiges of a much less enlightened time. These problems have been fully discussed and remedies suggested by authorities such as Potter [13, 14] and Jarrett.[4]

Medically these institutions have a service to perform in providing facilities for the supervision or nursing care of those who do not require the more costly facilities of the chronic disease hospital. The medical services for such nursing homes, infirmaries, and units should be provided through affiliation with the staff of a secondary hospital center or, where that is not feasible, with the highest qualitative level of service that is available. In a proper functioning of the anticipated relationship between the primary, secondary, and outlying medical units there should be active interchange, consultation, and maintenance of standards by the medical staff itself, with the official state agency remaining largely in the background.

There would be much to be gained if these local institutions, for which the title "nursing infirmaries" suggests itself, could be so developed and operated that they could serve the needs of all classes of the population. The fact that most of them are run by the local welfare departments need not preclude this possibility. Potentially paying patients could pay, though application of the means test should be humanitarian. It is the provision of facilities and the assurance of high standards of care for everyone that are important at this time.

Also, there is no reason why private nursing homes should not be utilized, provided, of course, they meet standards of facility and staff. Generally speaking, however, these units are too small to provide the necessary services without unreasonable cost.

In addition to institutional facilities, a complete plan for the care of the chronically ill should embrace provision for diagnostic and consultation clinic services and follow-up clinics for ambulatory patients who do not require institutional care. There also should be the fullest possible integration of such services with public health nursing services and other local health and welfare activities. Such integration cannot be left to chance but should be included in the substance of the program.

Since this is a public health conference, it probably is unnecessary to emphasize the significance of public health measures and the preventive medical approach to the lessening of the burdens of chronic disease. Certainly if there is any merit in preventive medicine as a concept, it should find a fertile field in the problems of chronic illness.

The problems of financing the construction and operation of the proposed facilities are also complex and the patterns currently in use vary greatly. Pending state and federal legislation may or may not change the entire picture. But regardless of what may emerge, the problems of integration, organization, and administration that have been mentioned will remain to be worked out.

If new legislation sweeps aside the problem of cost, we should be able to move that much more rapidly toward meeting this area of need. If it does not, we shall be faced with the difficulties of working within our current basic structure. Should the latter result, it is important to point out that the federal and many state laws for aid to localities in meeting their public assistance expenses may actually militate against the provision of the best quality care. For example, under the existing provisions, it may prove far more economical for a county to place its chronically ill in second-rate nursing homes, which are virtually unsupervised, in order to receive substantial reimbursement through federal and state funds, than it would be for it to care for these patients in good hospitals and infirmaries for which it can receive no financial aid.

While this problem may be a bit beyond the province of this discussion, it should be pointed out that a thorough review of federal and state legislation in these respects is most urgently needed.

The provision of the necessary facilities and services admittedly will be expensive. The question may well be raised, however, as to whether it might not prove more expensive to neglect the study and development of means for preventing chronic disease, or at least minimizing the periods of disability resulting from it, than it would be not to do so. This question would seem to be destined to be the increasing concern of government under an expanding social security system. A billion days of disability and unemployment a year will not be cheap! Furthermore, with an aging population, future production may have to depend more upon a sustained working capacity among older persons than is the case today.

In conclusion, it would seem that the time for facing the problem of the care of the chronically ill has come and, while it admittedly is difficult of solution, we are better equipped to meet it in terms of public interest, in understanding of our needs, and in the potentialities for the necessary coördinated action between official and nonofficial agencies and groups than we have been heretofore.

It is a problem involving the necessity for joint planning among welfare, health, medical, and hospital agencies. Such joint planning should result in the enunciation of a clear set of objectives

and in understanding and agreement with respect to the responsibilities of each. Finally, the fact that the care of the chronically ill is merely a part, albeit a large part, of the problem of medical care and health as a whole must be kept in mind so that such patterns as are developed may be consistent with the further evolution of good medical and health services.

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In-service Training in a State Department of Health

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EDUCATION goes on and on. It is a never-ending process starting from the day of birth and continuing until death. The better it "takes" the more flexible an individual becomes and the greater his benefit from each of his experiences. A few rare souls go through life with an ever-sharpening sense of expectancy, an ever-ripening wisdom, and an ever-increasing understanding. In some mysterious way they manage to keep their feet on the ground and their heads in the clouds. The truth is they are forever educating themselves, making the most of each experience, developing things, working them out, and getting enjoyment, philosophy, and satisfaction from the process.

One educator remarked many years ago, "Our educational efforts are sadly disappointing except when applied to those gifted individuals for whom they are almost superfluous." This point of view leans to the pessimistic side. But it points up the first step in any program of in-service training—careful and considered selection of personnel. Many of our great souls in public health had no formal training. They established the principles by which public health activities are being pushed forward today. These were pioneers, it is true, but there is still room for pioneering in public health. The field has not yet crystallized to such an extent that initiative and enterprise are not needed! May it never be!

It is hard to polish a stone. Recruitment of public health officers, nurses, engineers, sanitarians, clerks, dental hygienists, and health educators is worthy of the best thought and time in any state that the person assigned to do this job in each of these fields can give. Aside from the fact that employment difficulties are decreasing, an admonition to pick carefully still is significant. In certain counties in the country where a well trained health officer joined the military forces, public health might be further along today if he had not been replaced at all, because of the incompetence of his successor. The same is true for some other public health personnel. Programs in these counties have not progressed. Public opinion about the value of preventive medicine may have retrograded.

The war has pointed up the tragedy of improper selection of personnel. But if it has taught us lessons of what cannot be done with people who are improperly recruited, it has brought home forcefully a greater lesson of the flexibility and teachableness of people sincerely motivated to serve their community and fellow man. It has also emphasized the value of job analysis, better direction of professional effort and the use of less skilled people to take over the routine aspects of public health administration, nursing, sanitation, and other work.

In-service training of public health personnel may include any learning ex-

perience of a public health employee, varying from the visit of an advisory consultant to one or more years of long-term public health or related graduate work. It may include attendance at a two day institute for sanitarians on safe methods of spraying DDT, for nurses on techniques in the control of gonorrhea, or for health educators on methods of organizing for mass x-raying of 95 per cent of a county's population. In-service training accrues also to the convention delegate.

Short medical graduate courses in obstetrics, pediatrics, and syphilis offer in-service training to the practising physicians who conduct health department conferences. The visit of a nutritionist to a staff meeting in a county health department with the latest information is in-service training. The young statistical clerk who has an opportunity to go for the first time to the big city and learn about tabulating machines is having a learning experience of real value. The ambitious secretary who takes advantage of a night-school course in stencil cutting and mimeoscoping, journalism, or psychology is improving her personal and financial worth to the organization for which she works.

In-service training includes opportunities for local and state staffs to visit other health departments, observe procedures in other counties and states, and to return with new enthusiasm and ideas to the job at home. Training center apprenticeship for anywhere from a few days to a few months with formal classes and field experience is part of in-service training, as are short courses in public health and related fields at schools of public health and universities. Long courses in public health and all of its specialized branches, including not only communicable diseases, maternal and child health, statistics, sanitation, bacteriology, nutrition, and mental hygiene, but also business management, economics, sociology, and administration, are part of in-service training. In-service training is a big thing. In-service training is many little things.

In Mississippi all of these methods of in-service training are known, valued, and used. One of the important factors in personnel training in Mississippi has been the development of a training center at the Lauderdale County Health Department. This center is partially financed by the Commonwealth Fund in the interest of better public health personnel in Mississippi. On October 1, 1939, the school opened with organized courses of three months in practical public health for health officers and nurses.

Courses for sanitation supervisors got under way in July, 1941. The clerical training program started in January, 1943, and organized venereal disease investigator courses in recent months. At present classes are conducted for clerical workers and venereal disease investigators only. Resumption of formal training for health officers, public health nurses, and sanitation supervisors is mandatory, with a priority claim on the excellent staff members coming back from military service.

From October 1, 1939, to June 30, 1943, 40 physicians, 84 nurses, and 18 sanitation supervisors received training at the Lauderdale County Center.

Nurse training was under the direction of the supervisor and assistant supervisor of nurses. One to six trainees at a time were given training, and carried on a program of classes and planned field work. Each trainee was assigned to a staff nurse. She had her desk adjacent to that of the staff nurse and she and the staff nurse worked together in the office and in the field during the first two months of training. During the last month the trainee was given more responsibility and allowed to work alone, though with guidance.

Health officers and sanitarians had similar experiences in formal training and supervised field work. Each acted in the capacity of an assistant. Joint classes were held for health officers, sanitarians, and nurses in order that they might see the broad picture of public health and the value of dovetailing their services.

How valuable to the sanitation program can be the public health nurse who, finding an expectant mother drinking from a contaminated water supply, an infant suffering from diarrhea and covered with flies from an insanitary privy, reports these findings to her fellow workers, the sanitarians!

It is encouraging that unusually good clerks have been maintained in Mississippi throughout the war emergency. The quality of personnel dropped less in this field than in any other relating to public health. This has probably been due to the fact that these jobs were filled for the most part by high-type, home-town girls who preferred the stability of a job at home to wartime inflation and incoveniences in other places.

The clerical training program in Mississippi is a 4 weeks' course designed to cover every phase of clerical activities in a county health department. Following this 4 week period of training in Lauderdale County, the clerk comes to the central offices of the State Board of Health in Jackson to observe the functionings of the various divisions. During the absence of the clerk-trainee from her county, a substitute clerk carries on her routine duties.

The clerical training program is sponsored by the Commonwealth Fund and set up on a special budget. The budget provides for an instructor, two substitute clerks, and funds for paying travel and subsistence for trainees. Trainees are selected from clerks who have had considerable experience in a county health department, because such persons can absorb more of the details connected with clerical duties than new employees.

A number of central office clerks have been assigned to the clerical training center for a period of 2 weeks. During this accelerated course they are better able to appreciate the functionings of a local health department, particularly its clerical duties. From January 1, 1943, through June, 1945, 42 county health department clerks and 7 central office clerks received clerical training.

The venereal disease investigator receives at the center 2 weeks of intensive training following a short period of orientation in his county. After he returns to the county, a supervising venereal disease investigator works with him there immediately to help him with actual field problems as they arise.

Though exigencies of war shook to its foundations the formal training center program for health officers, nurses, and sanitarians, throughout the war valuable training was carried to the public health staff members in the form of county staff meetings, regional institutes, and state meetings. The subject of venereal disease has been one about which a great deal of staff education has been necessary in order to keep up with the new methods of treatment.

During the past year five 1 day regional conferences were held for public health nurses, three 1 day district conferences with health officers, and one 2 day state conference for venereal disease investigators. The purpose of all of these conferences was to bring out the new emphases in the venereal diseases—selection of patients for treatment centers, follow-up on treatment center patients, and renewed efforts in the epidemiology and diagnosis of venereal diseases. Now that the tremendous clinic load has been removed from county health departments—loads running up to 600 and 700 patients per clinic—the health department has

regained its primary function in quick and accurate attention to contact, follow-up, and diagnosis. In investigator, health officer, and nursing conferences a formal presentation in syphilis and gonorrhea facts was given, followed by round table discussion and questions.

After these venereal disease conferences the state supervisor of venereal disease control conducted a full staff conference in each local health department going thoroughly into the findings of the venereal disease survey previously conducted and the way the problem was being met in each county. Complete redirection of the venereal disease program was brought about with a remarkable amount of coöperation and understanding because of the in-service training given through these regional conferences.

A further interesting development in the venereal disease program in Mississippi has been the establishment of the first State Fever Therapy Unit supported by legislative appropriation. Under the direction of Dr. H. Worley Kendell, ten nurses have been given training in hyperthermy treatment and physiology.

Mississippi's program of training newcomers in the public health family—health educators—has got off to a good start. Demand for health educators in the state has been very much in excess of the supply available through normal channels. Recognizing the fact that the State Board of Health had to "grow its own," a project to seek outside aid for this purpose was sponsored jointly with the State Department of Education and the Delta Council, potent regional chamber of commerce. The General Education Board, joint sponsor with the International Health Division of the Rockefeller Foundation of Mississippi's coördinated school health project, agreed to back financially the program of training health educators over a span of several years.

Careful recruitment has made possible a wise selection of trainees with intellectual leadership, emotional maturity, and a background in teaching or other public service fields. At present eight such individuals are in schools of public health securing graduate work leading to either a Master's Degree in Public Health or a Ph.D. with public health emphasis. Three of these individuals are Negroes. In addition, one health education trainee is being financed by maternal and child health funds, and another by tuberculosis funds. Health educators at work have been trained through funds from the Commonwealth Fund, Kellogg Foundation, U. S. Public Health Service (Tuberculosis), U. S. Public Health Service (Venereal Disease), and U. S. Public Health Service (Title VI).

An experiment in short-range in-service training of teachers which has met with decided success has been tried in Mississippi during the past two years. Carefully selected teachers who were well known and highly regarded in their counties were brought to Jackson and given a 2 week course in the fundamentals of public health, with particular reference to maternal and child health.

Given definite and specific instructions in organization, how to work up immunization conferences, tuberculosis clinics, maternal and child health conferences, these educators were able to increase attendance at already scheduled conferences and clinics, thus making the professional time going into medical and nursing conferences more far-reaching. Each summer educators attained proficiency in teaching the simple facts about a few of the major fields of public health and greatly increased the understanding of those attending conferences and clinics through personal and group teaching in such fields as nutrition, mouth health, and tuberculosis.

Although not paid during the school

term by the local health departments in which they worked, these teachers, because of in-service training and experience they received, are carrying the message to Garcia in strategic ways throughout the year.

The initiation of the extended program in malaria control and DDT dusting in fourteen counties of Mississippi led to staff education in this field. A 2 day institute was held for Malaria Control in War Areas personnel to acquaint them with the program and to demonstrate spraying techniques. The excellent educational facilities of Malaria Control in War Areas offices in Atlanta were used in staff education on malaria of four health educators, two entomologists and one engineer. Two engineers, one educator, and one entomologist took special work in typhus control and DDT dusting at Malaria Control in War Areas offices in Savannah, Georgia.

Summer health educators working in counties having the extended malaria control program were held over three extra days following their 2 weeks' orientation course for special instruction in entomology, parasitology, and in the medical and engineering aspects of malaria control.

Numerous postgraduate courses for physicians have been given in Mississippi during recent years. Mississippi physicians have attended pediatrics and obstetrics courses at Tulane School of Medicine, Saluda, North Carolina, Harvard Medical School, and Slossfield Health Center at Birmingham, Ala. In March, 1945, five 1 day wartime courses in pediatrics and obstetrics were held with the coöperation of the Tulane School of Medicine throughout Mississippi. These were enthusiastically received by busy general practitioners.

In March, 1943, Dr. P. S. Pelouze of the University of Pennsylvania Medical School held fourteen special meetings of medical societies in Mississippi, speaking on the diagnosis and modern management of gonorrhea. These were attended by 65 per cent of the physicians of the state.

For many years a program in medical education has been carried on through coöperation with the state and local medical societies, State Board of Health, Tulane University School of Medicine, and other medical leaders.

Of value also in a constant program of in-service training is the planned staff conference, both local and state. Since 1939 the State Board of Health has had regular staff conferences for central office staff members. In the democratic way a committee of staff members plans these conferences each year for twelve months in advance. Conferences usually last an hour and a half and are held every three weeks on Saturday mornings when field workers are in.

Staff conferences for 1944 included the following:

Jan.	8	Periodic Health Examination Dr. Felix J. Underwood Dr. D. V. Galloway Dr. A. L. Gray
Jan.	29	War Neuroses Col. J. M. Cotton
Feb.	12	Mississippi's EMIC Program Dr. Virginia Howard
Mar.	4	Public Health and Social Welfare Relationships Dr. W. G. Hollister Miss Sara P. Ricks Miss Marie Hoffmann
Apr.	1	Control of Tuberculosis among Negroes Dr. Henry Boswell
Apr.	22	How the Army Rehabilitation Program Can Be Used to Train New Public Health Personnel Dr. J. A. Milne
Apr.	22	How the Laboratory Can Protect Citizens of Mississippi Against the Post-war Spread of Disease Dr. H. C. Ricks
Apr.	22	Communicable Diseases After the War Dr. A. L. Gray
June	3	Youth Problems in Wartime Mrs. T. Grafton Abbott
July	1	Mississippi State Board of Health Meeting Dr. Felix J. Underwood

Aug. 3 The School Health Service
The Division's staff
Sept. 23 Milk in Mississippi
Dr. N. M. Parker
Oct. 21 American Public Health Assn. Meeting—A Review
Various staff members
Nov. 18 A Year in Child Guidance
Child Guidance Staff
Dec. 30 A New Public Health Year
Dr. Felix J. Underwood

Participants, while mostly health department personnel, may come from related fields and other agencies.

Planned staff conferences are held in a number of the county health departments. An example follows:

Aug. 17 Venereal Disease. Case finding Program and Investigation. Educational Aspects.
Mr. A. W. Comings
Miss Cassie Smith
Sept. 7 Venereal Disease. Laboratory Contributions.
Mrs. Katie W. Field
Sept. 21 Malaria. Problem and Recommendations for County.
Oct. 5 Disease Carried through Food, Water, Milk and Improper Sewage Disposal. Problems of County and Recommendations.
Mr. Keith Smith
Oct. 19 Dental Hygiene
Mrs. Lucile Pitchford
Nov. 2 Mental Hygiene.
Nov. 23 Tuberculosis, Stage, Chances for Cure of Each Stage. Case Finding Program in the County. Recommendations.
Mrs. Dorothy Myers
Dec. 7 Health in Religion.
Dr. R. C. Bourret

The medical and public health library of the Mississippi State Board of Health has been of tremendous significance in keeping public health workers in the state on their tiptoes. With its 6,200 volumes and numerous current journals, the library serves the needs not only of public health workers—health officers, public health nurses, dental hygienists, engineers, sanitarians, health educators, and others—but physicians, dentists, nurses, laboratory technicians, and the like who are concerned with individual and community health.

Recognizing that in that Utopia "when things get back to normal" a full-time 12 month course in public health is the desideratum for the majority of public health employees, public health leaders are recommending an enlargement and improvement of existing public health schools, and perhaps the establishment of additional public health schools to meet the need for trained workers. It is even possible when Mississippi has its own 4 year medical school that there might well be in connection with it a department or school of public health.

Certainly for the field which is the leader in health protection programs, the most carefully selected and best trained people are none too good. Where excellence can be learned we must teach it. Where it can be cultivated we must tend it. Public health has come of age. Its youth has been so creditable that it is destined to assume health leadership in increasing amounts as time goes on.

New Virginia Communicable Disease Control Manual

The Department of Health of Virginia, of which Dr. I. S. Riggin is the Commissioner, is rewriting its *Communicable Disease Control Manual*. The new *Manual* is being patterned after the recommendations of the Association's 6th edition of *The Control of Communicable Diseases*. Dr. Henry H. Henderson, Virginia State Epidemiologist, will supervise the preparation of the revised manual.

Health Education

LAWRENCE K. FRANK

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EVERY society has had some kind of health education, usually expressed in proverbs and folklore and the teachings of its religion. These beliefs and practices are passed on to each generation of children and youth as the distilled wisdom of the past to guide their living and help them to escape the misfortunes and illnesses to which the group may be exposed.

Health education programs usually start with a body of knowledge about diseases and human functioning which constitutes the subject matter of their programs. This basic scientific and clinical material is then organized into a systematic course of instruction like other subject matter, such as geography or biology or physics and chemistry.

While this method of approach is in accord with prevailing educational theory and practices, and is being supplemented by visual and other aids, it largely fails to recognize the traditional beliefs and practices, with respect to illness and health and the very personal, emotional character of health.

From different studies, it has become clear that early in childhood the individual begins to develop an image of his or her own body and a way of feeling about bodily functions which usually persist, as the individual's characteristic mode of adult thinking, acting, and feeling toward all questions concerning his or her own body and its functioning.

Eating is subject to a variety of parental practices which have large significance for the infant and his subsequent attitudes and feelings about food. Some babies, especially those who are breast fed, on a self demand basis, may develop a feeling of enjoyment of eating which makes eating an occasion for gratification. Other babies, compelled to accept a rigid feeding schedule which may ignore their individual needs and subject them to prolonged hunger, may develop strong feelings about food and eating which continue to operate, especially if reinforced by difficult weaning and "forced feeding." These babies may never develop a feeling of enjoyment toward eating, but rather they may learn to resist food, especially when the parents try to force them to eat. Some may learn to use food as a weapon to coerce their parents, refusing to eat unless they are cajoled and bribed, while others use food and digestion to fight their parents.

Thus eating may become affected with a variety of feelings and serve as a form of parent-child conflicts, as shown by the many feeding problems among preschool children, the finicky appetite among school children, and the food aversions among adolescents. What should be a normal physiological process of eating and enjoying food thus may be loaded with all manner of emotional conflicts and moral issues. Later on these persistent feelings about eating and the traditional food habits the child has learned in the family may operate to defeat the health and nutritional programs designed to foster better nutrition.

Eliminations likewise often become the focus of parent-child conflicts over "toilet training," especially when at-

tempted too early or too rigorously. Thus, the process of eliminating may become an occasion for anxiety and guilt that persistently interferes with normal regular functioning.

Too many children are punished by being deprived of food or by being subjected to physical pain, as in spanking or beating. This may create a feeling about his body as a source of pain and unhappiness. It is not infrequent for parents to tie a child's hands and otherwise attempt to block and to punish him severely for infantile masturbation. Thumb sucking also may be rigorously opposed by various methods of restraint and physical punishment.

Sleeping is another process which may become a persistent focus of emotional conflict over the parental practices of enforced naps, keeping the child in bed as a punishment, and similar use of a physiological function for disciplining the child.

The emotional reactions of the child that we call anger and rage also are basic physiological processes which parental training often warps and distorts into persistent reaction patterns such as resentment against adult authority. Frequently the naive impulsive emotional response which is quite appropriate to an infant or young child is so strongly punished that the child learns to repress any overt expression of his feelings, which thereafter he releases in various disturbed functions—digestion, eliminations, breathing, etc., and in fantasies or disguised and surreptitious rebellion.

All these practices of infant and early child care and rearing develop in the child a way of feeling about his own body and its various parts, reactions, and functions. He may feel at ease and be at peace with himself or he may develop strong feelings of anxiety or of guilt over bodily functions and of resentment against adults who make him unhappy by these often unnecessary deprivations, frustrations, coercions, and painful punishments. These feelings tend to persist as the individual's characteristic way of feeling about himself, and they give rise to his image of his own body.

Often the child's image of his own body is influenced by the not infrequent parental teachings that the human body is shameful and indecent, to be kept hidden and ignored or even despised as unclean or dirty. Anything below the neck is to be covered up and tacitly denied, not pleasant or nice or as a source of wickedness and evil.

The persistence of this traditional attitude toward the human body is of large significance for medicine and for health education because it operates in so many ways to defeat what health education is attempting to achieve. It also appears in what many people believe and do about illness and their refusal to utilize available medical services for their own personal care. It must not be forgotten that illness has long been considered by some groups as a visitation or punishment for an individual's wickedness or failure to perform piously his religious duties. These convictions are reënforced by the traditional belief about the human body, which may then become the source of lifelong emotional resistance against not only health education but also needed medical care as well.

Another influence in the life of the young child which may establish persistent attitudes and feelings toward health education is the contacts with physicians and nurses. We forget that the young child may be seriously and permanently antagonized in his often painful experiences with physicians, such as immunization, vaccination, and inoculation.* When the child is seri-

* It has been proposed that the routine injections be given by someone the child will not again see or be treated by so that he will develop confidence in the physician and nurse who care for him, or that local anesthetics be used on children.

ously ill and suffers pain, as with coughs, ear conditions and similar localized infections, he may develop a feeling that anything to do with illness or health care is unpleasant and to be avoided so far as possible. These reactions are not inevitable, however, because some children who have been prepared for these experiences and who have been handled patiently and gently, do not develop these emotional reactions to physicians and these attitudes toward illness and health. But, for the bulk of children, it is safe to say that their early experiences with physicians and nurses, like their early experiences with dentists, is usually painful and disturbing and productive of persistent anxiety toward their own bodies and of resistance or hostility toward those upon whom they may have to depend for care.

During adolescence the individual boy or girl is again exposed to a number of experiences which may further contribute to his or her attitude toward health and feelings about bodily processes. While some adolescents grow, develop, and mature with relatively little disturbance or strain, a considerable number of adolescent boys and girls undergo a prolonged period of physiological instability as they grow rapidly in stature while their various organ systems and functional capacities lag behind. Thus, these adolescents are sometimes compelled to live for two or three years on different levels of maturity, with all the incoördination, clumsiness, and instability which this uneven growth and development entails. Such boys and girls may become exceedingly sensitive about their own bodies and worried over their functional capacities; the girls especially may be emotionally disturbed over the beginning of menstruation, particularly when it may require one or two years before they attain any degree of normal menstrual regularity.

It should be remembered that during adolescence the growing boy and girl have to become accustomed to their changing bodies and how to live with the new functions, impulses, and sensitivities that come with sexual maturation. Also they are expected to clarify and accept the masculine or feminine rôles and ways to act and feel as a man or woman in our culture.

There is also a reluctance to accept adult advice and guidance, often a strong resistance against the various programs of hygiene, health education, and physical training. These programs, however well meant, often arouse greater anxiety in boys and girls who are worried about their normality and preoccupied with the extraordinary beliefs about the human body and its functions, derived from their childhood experiences and from adolescent folklore.

The scientific knowledge and good advice offered in the courses in hygiene and health education are therefore often rejected and treated with horseplay because they cannot be emotionally accepted or reconciled with these preconceptions and anxieties.

The experiences of the young child and the adolescent must be recognized as playing a considerable rôle in the readiness of individuals to accept and to be guided by various forms of health education both at home and in the schools.

It may be appropriate here to point out how much of the sex education we offer youth is apparently designed to frighten and terrorize young people by picturing the horrors of venereal disease and the wickedness of prostitution. Neither of these is very helpful to young people who are struggling to find some way of understanding the place and function of sex in human living, handicapped by the deliberately misleading ideas given them in early childhood. Nor does the elaborate teaching of the processes of gestation

provide much guidance to adolescents who are not interested in having babies but in trying to find out what to do and say to members of the other sex and how to translate sex into love in accordance with our traditional aspirations.

When one looks at the large picture of health education and especially at what is being attempted among adults, it is evident that much of the present endeavor is ineffective because it does not recognize these personal attitudes and emotional reactions of individuals toward their own bodies and these traditional beliefs about the whole subject of health. While it is customary to speak of the instinct of self-preservation, and to assume that each individual is eager to enjoy health, or at least freedom from illness, it must not be forgotten that individuals also are resistant to changes in their ideas and living habits. They will change only when they can emotionally accept new beliefs and practices as psychologically equivalent to their old habits and expressive of their cherished values. It is also clear that the most difficult and baffling aspect of health education is this intangible but potent attitude of the individual toward himself or herself. Not infrequently men and women may vigorously reject what they may urgently need in the way of medical advice and treatment because they have no respect for their own bodies and feel they are not worthy of such help.

A recognition of these attitudes and emotional reactions toward illness and health is essential if health education is to become more effective in the life of the individual. There are innumerable beliefs and practices about health and medicine derived from the past which persist as folklore and customary practices in the lives of individuals, especially in the United States, because we are made up of representatives of so many different nationalities, each with its traditions to which they loyally adhere. These beliefs and practices enjoy all the sanction of immemorial tradition, and they may persist in the face of the most vigorous programs of health education and despite repeated treatment by scientific medicine.

If health education were approached as a problem of epidemiology, it would be appropriate to start, *not* primarily with the scientific knowledge to be taught, but with the discovery and delineation of the ideas, beliefs, and feelings about human functioning, health and illness which constitute the basic patterns of different groups in the population. This would mean studying the existing beliefs and living habits of different groups of people in each community to reveal their cultural traditions, that vary according to ethnic, national backgrounds, religious affiliations, and other groupings. These traditional ideas and living habits constitute the social, cultural environment in which people live, and offer the major obstacles and resistances to health education and to medical care. Health education, therefore, may be conceived as a process primarily of changing these cultural traditions by which people live, just as much as public health is changing the geographical-biological environment. This means providing emotionally acceptable equivalents based on scientific knowledge for the older beliefs and practices that must be replaced, if people are to understand and accept the new knowledge essential for their health.

A comprehensive program for health education would endeavor to focus the growing knowledge of human functioning and what is necessary and desirable in the maintenance of health for each stage in the life career of the individual, to be transmitted by those who are in a strategic position to influence the thinking and action of individuals in each of those stages. Thus, health education would increasingly develop preconcep-

tual preparation for child bearing since it is becoming evident that the physiological, nutritional, and emotional readiness of the woman for pregnancy plays a large rôle in the development of the unborn child and in child bearing. This means that any attempt to reach women for preconceptual preparation must be addressed to the adolescent girl, through high schools and colleges, in order to give her an understanding of her own functional needs and capacities and a realization of how she can better prepare herself for pregnancy, thereby protecting herself and favoring the development of her child. Here it would be necessary to study the folklore that circulates among adolescent girls, and the many unfounded beliefs and practices of personal hygiene which make health education of adolescent girls a difficult task. Moreover, it would be necessary to recognize the strong emotional reactions among adolescent girls over their female organism and functional processes, including their acute anxieties, their feelings of guilt, and their frequent resentment at being a woman in a "man's world."

An attempt to reach adolescent girls and young women with such a program is especially important because the further reduction of maternal mortality and of pregnancy wastage, that is, of spontaneous abortions, prematurely born infants and stillbirths, seems feasible only through better understanding and more active collaboration by women themselves for their own protection during pregnancy.

The task of health education is also to devise more effective methods of guiding mothers in the care of infants and young children since what they do and what they fail to do is so largely controlling over the child's physical and mental health. Much more can be done in the education of young women during high school and college years when the new understanding of child growth and development and of early personality formation can be presented as part of their general education. At present those engaged in advising young mothers are so often discouraged by the complete lack of even the most simple understanding and the inability to accept and utilize what pediatrics and well baby clinics and mental hygiene teachings have to offer. The persistence of older ideas about babies and children negates much of the teachings in well baby clinics and infant hygiene stations.

The various professional groups concerned with women, children, and the family must themselves receive further education and training if they are to contribute to this larger task. When physicians and nurses and social workers learn to intercommunicate and are better prepared for parent education, they can translate new knowledge and understanding and insights through their usual professional contacts. It is essential that these different professions integrate their teachings to avoid confusing women with conflicting ideas and advice, as at present.

Health education must be recognized and accepted as a vitally important element in the total educational program, at least of equal significance with the training in various skills and the acquisition of various academic subject matters.

It cannot be too strongly emphasized that the aim and purpose of health education is to help the individual student to reorganize his ideas, his thinking, his image of his own body, and, above all, his feelings and conduct, especially in his living habits, so that the conservation of his health becomes incorporated into his daily thinking, living, and feeling. The aim of health education should be to reorient the individual's attitudes and feelings toward his own body and its functions and needs; to give him the

new understanding and conceptions which he can use in place of the many obsolete, even archaic, beliefs about human functioning and living, to inform him about desirable health practices and health resources; and, above all, to create the feelings which are basic to individual health care and more intelligent living.

It may be urged that an effective program of health education must be at the same time an effective program for the development of better mental health among students at all ages. In many cases the most desirable and effective approach to the student may not be through direct presentation of materials dealing with health, but rather by a variety of experiences which will modify and change some of his basic assumptions and beliefs and feeling tones about life in general and himself in particular.

When so approached, it becomes clear that for different students, different subject matter courses and school experiences may be most influential in redirecting their thinking and feeling and living habits. Thus, some students may gain illumination through the course in literature, others through the work in biology or even in the physical sciences, chemistry, and physics; other students may be more susceptible to materials and experiences that are presented in social studies and social sciences, and others in art work or dramatics or home economics. In addition to these generally recognized courses, it must be remembered that increasingly the schools must provide a variety of special courses and planned activities, especially for students coming from certain family backgrounds, who need help and guidance in such elementary activities as personal cleanliness and grooming.

A well considered program of health education will make better use of the many opportunities offered by the schools and colleges through school luncheons, cafeterias, physical education, organized athletics, and whatever form of counselling and guidance may be provided for individual students. Perhaps the major difficulty today is the frequent lack of a clearly formulated program through which these diverse activities and specialized personnel can be articulated into a more coherent and effective program of health education for students. Too often each teacher counsellor and administrator pursues his or her own program with little concern for what others may be doing and with little or no realization of how difficult it may be for the student to reconcile and integrate these diverse programs and conflicting advice.

A threshold task for health educators is to formulate a broader, more comprehensive conception of what is essential so that in the planning of the total curriculum, in the establishment of the educational programs, and in whatever is done to and for the individual student, the objective of health education is explicitly recognized and effectively provided for. When so approached, it will be found that many of the existing courses in the elementary, and in secondary schools especially, may need considerable reorganization and reorientation so that they will be more nearly addressed to the understanding and the needs of individual students at different stages of development and made more relevant to what children and adolescents are really interested in and want to know.

Health education, however, is not limited to the formal educational programs of our schools and colleges. There is an immense amount of time, energy, and money spent on health education programs addressed primarily to adults, approached through lectures, radio programs, and a wide variety of printed materials of varying degrees of effectiveness. At the present time the

organization and operation of these many programs of health education are conducted by different organizations, each of which has selected for its major emphasis some one or more of the major threats to individual health or needs for healthful living. Thus, there are specialized and independent organizations and programs concerned with tuberculosis, infantile paralysis, with cancer, with diseases of the heart and circulation, with diabetes, with rheumatic fever, with venereal disease; also nutrition and care of teeth, eyes, ears, preparation for pregnancy and child bearing, and so on.* It is becoming clear that this fractionation of health education, while offering certain advantages of specificity, at the same time suffers from the inevitable confusion which these separate programs create in the mind of the public.

At present, health education is aimed at families and individuals in the endeavor to persuade or compel them by various appeals, rational, intellectual, expositional, promise of personal gains and advantages, fear of disease or death, or authoritarian pronouncements, to accept what is offered. To a large extent, it is a mass program designed to change individuals, using various motivations and selected bodies of new knowledge, to influence individual decision and action. But the arguments used, the threats and the promises made, and the invocation of science are both psychologically and socially of questionable validity and of little effectiveness.

This diversity of programs warrants more careful study and reflection because in addition to the many privately supported agencies, there are many governmental organizations on the federal, state, and local levels also engaged in conducting different programs of health education. Sooner or later there must be some resolution of the existing divergencies through the development of generalized methods and practices that can and should be utilized by all engaged in health education.

All the different endeavors are focused on the same basic problem, namely, of persuading families and individuals to modify their living habits in the light of new knowledge and new resources for meeting these persistent life tasks.

There is need for some larger strategy to guide all these different efforts and some more effective techniques for approaching individuals and families and persuading them to alter their customary living habits. In such a larger strategy, health education would take its place as one, but only one, of the objectives to be pursued along with all the other efforts to improve human living. Such a correlation of programs will not occur, however, until each of the various organizations conducting these diverse programs recognizes that it is part of this larger endeavor and realizes that its specific efforts, whether for health or nutrition or child welfare, mental hygiene, or any other objective, can be effectively sought only through this coördinated approach.

In addition to these programs conducted by public and private organizations, there are the innumerable commercial programs which offer advice and often give specific instructions about health and care of illness. Thus, in the advertisements of various drugs and medical preparations and foodstuffs, the public is being told what to believe and what to do about health needs, and how to diagnose and treat illness and impaired functions. The radio commercials especially are aimed at the family and the individual and often create further confusion and conflict in people's beliefs and practices by what

* Cf. Gunn, Selskar, and Platt, Philip S. *Voluntary Health Agencies.* 1945.

they so insistently urge. Not infrequently these commercial programs are lacking in validity, and deliberately play upon the anxieties of people for selling some health food or patent medicine.

The responsibility of individual physicians for the development of health education should also be recognized here. Unfortunately, the contacts of patients with physicians rarely serve as educational experience for the patient, because the doctor is either too busy to offer any explanation and advice beyond the specific instructions for the illness or disease he is treating or he is not interested in trying to modify living habits of patients. Moreover, many physicians are convinced that nothing will change people's ideas and living habits because they are too "dumb" or indifferent. Every physician is faced with this baffling problem of how to communicate his knowledge and his judgment of the individual patient in such a way that it will be accepted by the individual and will be utilized in guiding his daily living. Even when the patient may be in a highly precarious condition which will become more threatening unless he modifies his customary practices of eating, drinking, smoking, sleeping, working, playing, and so on, he may still be resistant to any medical advice and unable or unwilling to modify these customary living habits. When it is realized that each individual develops a way of life which he can change only when helped with skillful guidance and the reënforcement of someone he trusts and admires, it will become obvious why the customary didactic advice to patients is of so little avail. For many individuals any effective alteration in their way of life calls for something equivalent to psychotherapy since they can change their mode of living only in so far as it is accompanied by some alteration in their personal orientation and their profound feelings toward life. Group therapy may provide an effective procedure, as already being used with diabetics and neurotics.

Perhaps the most fruitful opportunity for health education of the individual patient is in the period of convalescence when he may be more susceptible to guidance and redirection because he is recovering from an illness and may be emotionally more receptive to such advice.*

As more and better provision is made for convalescent care, the opportunities for this health education will be increased. Full advantages of such opportunities will, however, not be taken unless there is a clear realization of the kind of reëducation and psychotherapy that is needed to be effective with different patients. Recent experiments in the development of group methods indicate that individuals with much the same ills and needs can be effectively helped through group discussions and group decisions. It has been found that the association in a group with common needs and difficulties may be utilized as a very potent influence upon the individual to modify his customary patterns of thinking and feeling and living.

As organizations are established for the provision of medical care under different auspices, the need for better health education will become more urgent. Those enrolled under such plans usually have little understanding of how to make intelligent use of and to get full benefit from the medical services to which they are entitled. Many individuals also are inclined to make unnecessary demands upon the medical services made available through prepaid plans, thereby adding to the cost and interfering with the effectiveness of the organization. A systematic effort to reëducate members of such

* New York Academy of Medicine, 1944 Conference on Convalescence and Rehabilitation.

medical care organizations must be undertaken as a necessary step in the further development of prepaid medical care and of preventive medicine to keep people well.

The protection and the guidance of the individual to meet the sequential changes in living as he grows older will soon become one of our major health problems because of the rapid growth of the population over fifty, among whom there is now so much chronic illness, disability, and impairment, and psychosomatic disorders. Organizations for medical and health care should become the major agencies for health education, just as the family doctor in previous generations advised and cared for individuals from childhood on.

To a considerable extent health education and medical services have been provided on the assumption that each individual was relatively free to develop whatever design of living he might prefer and to jeopardize his health and functional efficiency to whatever extent he might wish. Health education has endeavored to persuade each individual to modify the use of this freedom, while medical services have endeavored to provide such care and treatment as he may require if he develops an acute illness or otherwise has impaired his functional capacities by his customary way of life.

With the development of programs of health supervision and medical care in the armed forces, with the rise of organized efforts in industry to provide health supervision and with the development of various forms of health and medical care in educational institutions and of prepaid medical care in communities, we may be undergoing a significant modification of this historic conception of individual freedom and responsibility with respect to health.

While there is no immediate prospect of any such movement, it is possible that in the years ahead there may be a growing acceptance of the principle that the individual is not at liberty to endanger his life and to jeopardize his health, because he is a responsible, participating member in a social order, whose carelessness or perversity in regard to health is a threat to the integrity of that social order. The development within recent years of programs designed to discover those who have been exposed to tuberculosis and venereal disease and to compel them, if necessary, to submit to treatment, should be considered as one possible indication of this future trend. Likewise, the commitment of those with mental disorders offers another indication. Reference should also be made to the growing requirements of vaccination for smallpox and of various forms of immunization, for example, diphtheria, which are required of all children seeking admission to the public schools. Further indications of this movement are to be seen in the progressive expansion of public health controls which are being exercised over an increasing range of individual and organized activities where either the individual himself or the community may be threatened by what he does or fails to do.

To the extent that the causes or sources of illness are understood, it is probable that our historic attitude toward the sick may undergo a considerable modification. Instead of thinking of the individual who is ill as unfortunate, it is likely that for many forms of illness and disability and impairment, the individual will be considered to have been grossly negligent and careless or unintelligent, as suggested in Samuel Butler's *Erewhon,* years ago. It is illuminating to regard the changes that have taken place in the conception of accidents and their prevention during the past thirty or forty years, bringing a clearer recognition of how often an "accident" is not unrelated to the per-

sonality of the one injured and to various controllable factors in the environment.

These speculations about the future are not irrelevant to the tasks of health education today because sooner or later those engaged in health education must clarify the basic assumptions upon which they will proceed, and endeavor to formulate some kind of social philosophy and concerted plans of operation that will more effectively translate new knowledge into living habits and will guide our whole social order in the interest of health care and human conservation.

Know Your Public Health Nurse Week

President Truman paid tribute to the more than 20,000 public health nurses of the nation in a message in connection with the first annual observance of Know Your Public Health Nurse Week, April 7–13. Know Your Public Health Nurse Week is sponsored by the National Organization for Public Health Nursing with the coöperation of the U. S. Public Health Service.

The President's message follows:

The Observance of "Know Your Public Health Nurse Week" brings long overdue public recognition to one of the most important groups of health workers in the country. I am pleased that this annual tribute has been inaugurated at a time when our people are awakening to the necessity for a greatly expanded public health program.

If we are to attain "health security for all, regardless of residence, station or race—everywhere in the United States," as requested in the recent health message to the Congress, we shall need not only more medical facilities, but also more doctors, scientists, dentists, nurses, and other specialists. Adequate public health nursing service for all will require around 65,000 public health nurses—or more than two new nurses in addition to every one now on duty in local, state, and federal agencies.

There is scarcely any public health activity in which the services of the specially trained nurse are not utilized. Her skills complement those of the family physician when she carries out his instructions for home care of the patient in a wide variety of situations. Today, when our civilian hospitals report as serious personnel shortages as they experienced during the stringent war years, the stay of patients is being cut to a minimum and follow-up care in the home is of paramount importance.

Thus, the public health nurse is one of the strongest links in the chain of disease prevention and the promotion of good health on the part of both children and adults. Her contribution to better individual and community health cannot be overestimated. It gives me genuine pleasure to pay tribute to the public health nurses of America. I hope the day will not be far distant when their services will be available to the total population.

Infectious Hepatitis—Presumedly Food-borne Outbreak

MARGARET R. READ, M.D., HULDAH BANCROFT, PH.D., JAMES A. DOULL, M.D., DR.P.H., F.A.P.H.A., AND ROBERT F. PARKER, M.D.

Demonstrator of Medicine; Assistant Professor of Biometrics; Elizabeth Prentiss Professor of Public Health; and Associate Professor of Medicine; School of Medicine, Western Reserve University, Cleveland, Ohio

IT is commonly believed that the hepatitis seen in epidemic proportions in members of the Armed Forces in 1942–1943 was a human infectious disease acquired from human serum used in preparation of the yellow fever vaccine then in use.[1] This belief presupposes that there naturally occurs in man a hepatitis due to a virus which may under certain conditions be present in the serum or plasma. If analogy with other virus diseases is valid, it may be presumed that a group of agents might cause a disease having similar clinical characteristics.[2] It would seem worth while, therefore, to record each outbreak of what clinically appears to be infectious hepatitis in which the mode of transmission seems reasonably clear even though conclusive evidence as to the viral cause or exact mode of transmission may not be available.

In the late spring of 1944 an outbreak of infectious hepatitis occurred among students at Western Reserve University School of Medicine. The outbreak was explosive, onset dates for all 24 cases falling between May 26 and June 5 (Table 1).

Cases developed in all four classes: 9 in the first year, 7 in each of the second and third years, but only 1 in the fourth year. All patients were members of a single fraternity.

TABLE 1

Day of Onset of Symptoms in 24 Cases

Date		Number of Cases
May	26	1
	27	2
	28	3
	29	0
	30	3
	31	3
June	1	4
	2	4
	3	1
	4	2
	5	1

Early in April, two first year students were hospitalized because of jaundice. These two men were not members of the fraternity and, as far as could be determined, had had only casual contact with the subsequent patients. One case developed in a dental student two months after the principal outbreak, but again history of only very casual contact was obtained. Other than these, no cases were recognized during the year of 1944.

Data relative to the eating habits of members of the fraternity are shown in Table 2. Of 101 members of the fraternity, only 14 men lived in the house and ate all of their meals in the house dining room. Four cases developed in this group, an attack rate of 28.5 per cent. Sixty men regularly ate all or part of their meals at the house but

did not live there. Among these there were 20 cases, an attack rate of 33.3 per cent. The remaining 27 members either ate no meals or only an occasional one at the house. No cases occurred in this group. No cases occurred in students other than members of the fraternity, in spite of close daily contact in classroom and laboratory. These facts would indicate that regular eating at the fraternity dining room was an important factor in determining the risk of attack.

TABLE 2

Relationship of Meals Eaten at Fraternity House to Attack Rate

Frequency of Eating at Fraternity House	*Total*	*Patients*	*Attack Rate Per cent*
Eating regularly			
Resident	14	4	28.5
Non-resident	60	20	33.3
Eating infrequently	20	0	0.0
No meals *	7	0	0.0
All members	101	24	23.8

* March 1 to June 1, 1944.

An analysis of the number of meals eaten at the house revealed both more regular and more frequent eating by the patients than by the nonpatients. Since an incubation period of from 20 to 34 days [3] has been reported in experimentally produced infectious hepatitis, a study was made of meals eaten between April 10 and May 15. This showed that the patients on the average ate 47.5 meals out of a possible 84 served, as compared with 25.9 for nonpatients, a ratio of 1.8 to 1. For a period of 3 months prior to the outbreak the ratio for meals eaten by patients to those eaten by nonpatients was the same.

An attempt to select a single day on which the infection might have occurred was disappointing. On no day did all the patients eat all their meals at the house. Considering only lunch and dinner, since the proportion of breakfasts eaten by both patients and nonpatients was relatively small, there were two days, March 8 and 9, on which every patient ate either lunch or dinner or both. On those days, respectively, 28 and 31 of the 77 nonpatients ate neither lunch nor dinner at the house. Infection occurring on these dates seems unlikely in view of the experimental work reported, as an incubation period of 80 days would be much too long.

There were, however, periods of two successive days each on which every patient ate either lunch, dinner, or both on one or the other or both days. These periods were April 27 and 28 and May 9 and 10. On the first of these two periods, the number of nonpatients who ate neither lunch nor dinner was 18, on the latter 31. Thus either of these two periods might have been the days on which infection occurred.

Investigation showed that the kitchen and dining rooms were clean. Left-over food was stored in refrigerators. Pasteurized milk was obtained daily in 2 gallon jugs and kept covered, but not on ice, until serving. All water used came from the regular municipal supply. Inspection showed no evidence of rat infestation.

Unfortunately no record was kept of the food served at individual meals. Consequently no single article of food could be incriminated. A study of the eating habits of the patients and a sample of nonpatients revealed no essential difference. There had been no symptoms of unusual illness on the part of any employees handling food. Nevertheless, evidence points strongly to an epidemic spread through some article or articles of food served in the fraternity dining room.

The clinical picture of the disease was quite uniform in the great majority of the cases. A number of the salient features of the disease are presented in Table 3. In most cases the onset of the disease was insidious. Malaise and general myalgia gradually increased,

TABLE 3

Frequency of Various Clinical Signs in 24 Patients

Clinical Signs	*Number in Which Sign Occurred*	*Remarks*
Hyperemia of pharynx	11	Slight to moderate degree. No associated symptoms.
Superficial lymphadenopathy	6	Usually cervical chain only. Generalized in 2.
Enlarged spleen	6	In one case extended 4 cm. below costal margin. Persisted for 4 to 14 days.
Enlarged liver	20	Varied from a barely detectable enlargement to one extending 4 cm. below costal margin. The liver was fairly firm, edge smooth and somewhat rounded. Usually somewhat tender. Persisted for 4 to 14 days.
Bradycardia	22	Lowest pulse rates were 44 to 60.
Leukopenia	16	Below 5,000 WBC's per cu. mm. Highest count, 6,350.
Clay colored stools	10	
Albuminuria	12	Slight to moderate.

chilly sensations were noted, and fever appeared which might rise to 38° or 39° C. About half of the men complained of orbital pain at the time of onset. Anorexia appeared early and by the end of 4–7 days had become severe. By this time nausea was present also, and in many cases was associated with almost intractable vomiting. Dark urine was noticed soon after the onset of illness. In a few cases, it was almost the first sign of disease. By the 4th or 5th day the fever had begun to subside, and within a day or two jaundice was evident and this continued to deepen for several days.

By the end of the second week definite improvement was evident in nearly all cases. Appetite returned, epigastric distress subsided, and sometimes a decrease in the depth of jaundice was apparent. Asthenia persisted in most cases for some weeks after the disappearance of all other symptoms or signs of the infection.

Certain features of the illness which these men presented were strongly suggestive of mononucleosis. Although there were no complaints referable to the pharynx, a hyperemia of definitely abnormal degree was present in half of the patients, and superficial lymphadenopathy was present in one-fourth. Usually this involved only the cervical chain of lymph nodes. In 6 cases the spleen was palpable, in one case extending 4 cm. below the costal margin. In contrast to mononucleosis, the total white blood count was low, a decrease involving chiefly the neutrophilic cells, but usually with a disproportionate increase in cells classed as monocytes, the percentages of which ranged from 7 to 26. The liver was palpable in almost all cases and usually was tender. The icterus index was high in all cases, the highest being 72. The cephalin flocculation test was positive in all cases at some time during the illness. The prothrombin content of the blood was abnormally low in several cases, but no tendency to hemorrhage was observed. Electrocardiograms were made in a number of cases, the findings of which are being reported elsewhere.[4] Essentially, there was a depression of the amplitude of the T wave, the extent of which bore no relation to the depth of the jaundice.

During the period of the outbreak

7 other members of the fraternity, 5 of whom ate regularly at the house, exhibited symptoms possibly caused by hepatitis. In none was jaundice observed.

COMMENTS

The clinical picture of the disease in these patients was similar in all particulars to that which occurred among military personnel, and to spontaneous outbreaks in civilian populations.

The possibility of spirochetal jaundice was excluded by studies made by Dr. E. E. Ecker. Blood plasma was examined directly in the darkfield for leptospira. Blood and urine was seeded into Schüffner's leptospira medium and inoculated into young (less than 250 gram) guinea pigs. The urine was alkalinized before collection for culture and animal inoculation. The sera of several patients were examined in convalescence for the presence of leptospiral agglutinins. All of these examinations were negative.

A notable feature of the principal outbreak was its explosive character, suggesting a limited period of exposure of a large group of men. No relation could be discovered between the outbreak and two previous cases of jaundice occurring in members of the student body, and no secondary cases were recognized in spite of the close classroom association of men early in the disease with presumably susceptible individuals. In the case of the dental student, the contact was at second hand. Evidence points clearly to the fact that this infection was confined to one fraternity and those who ate regularly at this fraternity had a much higher attack rate than did other members. The evidence of marked disturbance of the lymphatic system was unusually great. No characteristic change in the differential distribution of white cells could be established and no cells having the characteristics of the abnormal ones which appear in infectious mononucleosis were recognized, but a total of 9 (37 per cent) of the patients had lymphadenopathy, either cervical, general superficial, or splenic, and a white blood count which bore some resemblance to that of mononucleosis.

SUMMARY

An outbreak of infectious hepatitis among medical students is described. The outbreak was explosive, involved only members of one fraternity, and primarily those who ate regularly at the fraternity dining table. The cases were not traceable to previous cases, and so far as could be determined led to no secondary cases.

ACKNOWLEDGMENT—It is a pleasure to acknowledge the coöperation of Dr. A. B. Denison, Physician in Charge of the Student Health Service, who put these cases at our disposal for study and greatly aided in the collection of the data.

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Pertussis Vaccine Prepared with Phase-I Cultures Grown in Fluid Medium

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THE difficulties encountered in the mass preparation of phase-I pertussis vaccine with strains grown on a blood-enriched agar medium are a common experience. Service costs connected with the provision of an adequate and continuous supply of blood and high and apparently unavoidable losses of media and vaccine due to contaminations not only place production expenses at an unreasonable level but also at times may reduce vaccine yields below distribution requirements. The substitution of a fluid medium that does not contain blood and that can be sterilized by heat offers an approach to the solution of these practical problems. Furthermore, vaccine prepared from whole fluid cultures may contain essential soluble antigenic substances not present in the usual pertussis vaccines prepared by suspending in salt-solution cultures grown on human- or sheep-blood agar.

Hornibrook in 1939 [1, 2] reported that *Hemophilus pertussis* could readily be grown in a fluid medium in which organic nitrogen, as in amino acids, certain polysaccharides, and organic sulfur were considered the essential ingredients. These were supplied by hydrolyzed casein, soluble starch, and cysteine or glutathione; in addition the formula included only inorganic salts and yeast extract or nicotinic acid. This medium was suggested for pertussis vaccine preparation,[3] but in early trials it was found that modifications were necessary because certain strains of *H. pertussis* grew poorly or not at all, and some alteration in phase-I characters [4, 5] occurred. Recent papers by Wilson,[6] Farrell and Taylor,[7] and Verwey and Sage [8] give revised formulas for the medium and report favorable laboratory data on the antigenicity of fluid-medium vaccines. Extracts of liver or human blood cells furnished accessory growth factors. The present paper describes a medium that does not require the addition of such extracts and its use in the preparation of pertussis vaccine. It also reports results of potency tests of the vaccine in mice by the newer method of intracerebral injection of test cultures.

SELECTION OF FORMULA

The original fluid medium of Hornibrook was compared with various modifications designed by one of us (M.W.W.) to determine the optimum amounts of the inorganic salts, soluble starch, and cysteine hydrochloride required, the effects of the addition of different amounts of copper, iron, manganese, and zinc, of variations in the pH, and of the use of sources of nitrogen other than hydrolyzed casein. Over forty combinations were tried. Two phase-I pertussis strains, Nos. 40103 and 41405, used in routine vac-

cine production[9] were cultivated for from two to five generations in each medium dispensed to provide a shallow layer with a relatively large surface area. The cultures were incubated at 35° C. for at least 3 days and the amounts of their growth estimated daily by comparing the turbidities with those of a set of Pyrex glass standards[10, 11] representing concentrations of from 500 million to 10,000 million *H. pertussis* bacilli per ml. Strain No. 40103 was more readily adapted to fluid medium than strain No. 41405. However, with both, increased growth resulted from the addition of suitable amounts of copper and iron sulfates to the medium, but the growth was markedly granular. By decreasing the sodium and calcium chloride content, cultures of uniform turbidity were obtained. Peptic or tryptic digests of casein were not found superior to hydrolyzed casein, "casamino acids," as the source of nitrogen. The medium finally selected differs from Hornibrook's, especially in decreased amounts of sodium and calcium chlorides, in increased content of soluble starch, potassium phosphate, and magnesium chloride, and in the addition of copper and iron. Also it has been found that the cysteine hydrochloride can be added prior to sterilization.

FLUID MEDIUM FOR H. PERTUSSIS

(Casein hydrolyzate medium with yeast dialyzate)

Casamino acids (Bacto), technical	10 gm.
Sodium chloride (A.C.S.*)	2.5 gm.
Monopotassium phosphate, KH_2PO_4 (A.C.S.)	0.5 gm.
Magnesium chloride, $MgCl_2.6H_2O$ (A.C.S.)	0.4 gm.
Starch, soluble, powdered	1.5 gm.
Calcium chloride, $CaCl_2$ (A.C.S.), 1 per cent solution	1 ml.
Ferrous sulfate, $FeSO_4.7H_2O$ (A.C.S.), 0.5 per cent solution	2 ml.
Copper sulfate, $CuSO_4.5H_2O$ (A.C.S.), 0.05 per cent solution	1 ml.
Cysteine hydrochloride, 1 per cent solution	2.5 ml.
Yeast dialyzate	50 ml.
Distilled water to make	1 kg.

* A product that meets the standards of the American Chemical Society and bears a label giving the analysis.

Dissolve the casamino acids, salt, phosphate, and magnesium chloride in part of the water. Add the remaining ingredients and make up to 1 kg. Adjust pH to 7.2–7.3. Boil until the starch is dissolved and the medium clear. Filter and dispense in 200 ml. amounts in 1 liter Roux bottles. Autoclave at 10 lb. pressure for 15 minutes.

YEAST DIALYZATE

Brewers' yeast (Fleischmann pure dry, type 2019)	500 gm.
Distilled water	800 gm.
Distilled water	2,000 ml.

Make a paste of the yeast with the 800 gm. of water and transfer to a cellophane tube (500–550 mm. length, about 114 mm. diameter, 0.089 wall thickness). Tie each end of the tube with heavy twine, immerse it in the 2,000 ml. of water in such a manner that the liquid cannot spill or seep through the ends of the tube, and adjust its position to give approximate equality of liquid-level inside and outside the tube. Heat at from 78° to 80° C. for 7 hours. Remove the tube and transfer the dialyzate to a bottle. Add 5 ml. of chloroform per liter, stopper with a rubber stopper, and store in the coldroom. This dialyzate is clear, requires no filtration, and remains satisfactory for use even after several months' storage.

Eleven phase-I pertussis strains were cultivated in tubes of the selected fluid medium for four or five successive transfers. Growth was consistently good. The cultures were uniformly turbid or only slightly flocculent. The bacterial counts after 48 or 72 hours' incubation were usually from about 8,000 million to 10,000 million or more bacilli per ml. according to turbidity measurements. In the course of vaccine preparation, direct counts of cultures grown for 72 hours in 1 liter Roux

bottles indicated that the bacterial concentration was, as a rule, from about 10,000 million to 15,000 million bacilli per ml. No significant changes in phase-I morphologic or cultural characters were noted. Typical hemolytic activity was demonstrated when the last transfers were streaked on sheep-blood potato-infusion agar plates, and with ten of the strains agglutination reactions occurred in high dilutions of a phase-I serum. One strain exhibited reduced agglutinative activity after the third transfer.

PREPARATION OF VACCINE

For the preparation of vaccine, strains Nos. 40103 and 41405 were grown separately for 72 hours in the fluid medium dispensed in 200 ml. amounts in 1 liter Roux bottles. The finished vaccine, sterilized by 0.01 per cent of "Merthiolate," contained 10,000 million bacilli per ml., 5,000 million of each strain.

Beginning with a 24 hour culture on potato-infusion rabbit-blood agar,[9] three successive transfers to tubes containing fluid medium were made and incubated at 34°–36° C. for 24 or 48 hours. After tests for purity and identity, including agglutination with a phase-I serum, medium in bottles to provide seed cultures was inoculated and incubated for 72 hours. From 15 to 20 ml. of pure and typical cultures were dispensed into each vaccine bottle. The bottles were shaken by hand once a day during the 72 hours' incubation. After microscopic examination of stained preparations, the cultures were pooled in 4 liter graduated bottles. An additional microscopic examination was made and sheep-blood potato-infusion agar plates streaked with material from each pool. "Merthiolate" in a 1 per cent solution was added to the pooled vaccine to give a final concentration of 0.01 per cent, and the vaccine was stored in the coldroom. The cultures were usually nonviable after from 2 to 3 weeks.

When a lot of vaccine consisted of more than one bottle of each strain, a sample from one was counted by the Helber counting-chamber method on the day of harvesting and diluted to contain 10,000 million bacilli per ml. This dilution was then used as a turbidity standard in estimating the bacterial concentration of samples from the remaining bottles. The bacterial count of the vaccine cultures was adjusted to 10,000 million per ml., equal volumes of vaccine of the two strains were pooled, and routine sterility tests for diluted vaccines made.[9] Tests for viability of the pertussis bacilli were made at this time and again when the vaccine was dispensed into final containers.

POTENCY TESTS OF VACCINE

The immunizing potency of the fluid-medium vaccine for mice was compared with that of the routine material prepared from sheep-blood starch-agar cultures [9] and of a vaccine prepared in a fluid medium of different composition by another laboratory. Mice were injected subcutaneously or intraperitoneally with vaccine, and the degree of immunity induced was estimated from the survival rate following the injection of live culture. In early tests, the vaccinated and untreated control mice were injected intraperitoneally with live culture suspended in mucin.[12] The number of bacilli in the minimum lethal dose (m.l.d.) of the test culture was 50 million or more, and the test dose for the vaccinated mice 200 or 400 million bacilli, or only about 4 to 8 m.l.d. Although an apparently high degree of protection could be demonstrated by this method, the test was not sufficiently sensitive to determine the relative potencies of different lots of vaccine. Furthermore, microörganisms other than *H. pertussis* were frequently recovered from the peritoneal fluid and heart's blood of the mice that died. In later

tests, live culture suspended in broth was injected intracerebrally.[13, 14] The results were in general in accord with those of Kendrick who first applied this method to tests of pertussis vaccines.[15] In order to select suitable test cultures, 20 strains of *H. pertussis* were tested for virulence for mice by the intracerebral method. Four proved to be of relatively high virulence. Fatal infection could readily be induced in mice with doses of from 20,000 to 2,000 bacilli or less of the pertussis strains selected for use in the potency tests, and the comparative potencies of different vaccine preparations could be ascertained with test doses for vaccinated mice of from about 250 to 1,000 or more m.l.d.

Immunization—Mice weighing 8–11 gm. were injected subcutaneously at 3 day intervals with 0.1, 0.2, and 0.2 ml. amounts of suitable dilutions of vaccine. In a few tests, the total dosage was given in one injection subcutaneously or intraperitoneally. Ten mice were used for each dose of vaccine or test culture. On the day immunization was begun, a group of mice from the same stock and of the same weights as the mice to be vaccinated were set aside for controls of virulence. A constant total dose of vaccine and varying doses of test culture were used at first. More recently, the doses of vaccine have been varied in order to titrate the amount of vaccine required to protect mice against a given test dose of culture. The total dosage of vaccine for the different groups immunized ranged from 62.5 million to 4,000 million bacilli.

Injection of live culture—Seven days after the last dose of vaccine, all the mice were injected intracerebrally, under ether anesthesia, with live culture. Strain No. 40103, or a heterologous strain, No. 44122, was grown for 24 hours on rabbit-blood potato-infusion agar, suspended in broth, filtered through cotton, and diluted to equal in density a Pyrex glass standard representing 10,000 million bacilli per ml. Further serial dilutions of the culture were made as required. The test doses of culture, from approximately 2 million to 10 million bacilli for the vaccinated mice and from 200 to 20,000 bacilli for the control mice, were injected in 0.04 ml. amounts. The mice were observed for 14 days. In those that succumbed symptoms of encephalitis began to appear after the 3rd or 4th day. Most of the deaths occurred between the 4th and 8th days. Fatalities before the 3rd day were omitted from the calculations of the titers, since they were usually due to injury at the time of injection. While there were some irregularities in the survival rates, the results were in general regular and could be duplicated in repeated tests. Pure cultures of *H. pertussis* were, in most instances, recovered at autopsy from the brains of the mice that died.

The fluid-medium vaccines, in repeated tests by the intracerebral method, were definitely superior in immunizing activity to the routine phase-I vaccine, control and current lots, prepared from blood-agar cultures when the doses of vaccine had been administered subcutaneously. Irrespective of differences in the schedule of immunization of the mice, in the test strains, or in the test doses of culture, smaller amounts of the fluid-medium products than of the routine material were required to induce a given level of immunity. In one of two tests, in which the mice were immunized by a single intraperitoneal injection, the fluid-medium vaccine appeared to be of higher potency than the routine control; in the other, there was no significant difference between the two types. The results of representative tests are recorded in Table 1.

The fluid-medium vaccine prepared in this laboratory also compared very favorably with the sample of fluid-medium vaccine prepared elsewhere. These tests were made prior to the use of the present method of titration of the protective dose of vaccine. However, both in intraperitoneal tests with mucin and in intracerebral tests against varying doses of culture, the results indicated a greater immunizing potency in the vaccine prepared here.

In agglutinogenic activity in rabbits the fluid-medium vaccines corresponded to or exceeded the routine products.

TABLE 1

Titration of Immunizing Potency for Mice of Pertussis Vaccines Prepared from Blood-agar and Fluid-medium Cultures

Strains Used in Potency Tests					Method Used in Immunization			Type of Vaccine Tested				
		Virulence-control Mice		Test Dose Vaccinated Mice				Blood-agar Medium *			Fluid Medium †	
		Dose Approximate Number of Bacilli	No. Died / No. Tested	Approximate Number of Bacilli	Injections: Route	Injections: Number	Total Dosage of Vaccine: Number of Bacilli	No. Died / No. Tested	Protective Dose 50 Per cent End Point Number of Bacilli ‡		No. Died / No. Tested	Protective Dose 50 Per cent End Point Number of Bacilli
Date Tested	Number											
1945				Million			Million			Million		Million
5/17	40103	20,000	10/10	5	Subcu.	3	250	6/10			2/10	
		2,000	2/10		"	3	1,000	7/10	1,414		0/10	<250
		200	2/10		"	3	4,000	2/10			1/9	
7/13	40103	20,000	5/5	2	Subcu.	1	62.5				7/10	
		2,000	3/5		"	1	250	10/10			7/10	
		200	2/5		"	1	1,000	7/10	>4,000		2/10	379
					"	1	4,000	10/10				
8/27	40103	20,000	3/5	10	Subcu.	3	62.5				9/10	
		2,000	3/5		"	3	250	9/10			5/9	
		200	2/5		"	3	1,000	3/10	743		0/10	252
					"	3	4,000	2/10				
8/30	44122	20,000	2/5	10	Subcu.	3	62.5				9/10	
		2,000	4/5		"	3	250	8/10			4/10	
		200	1/5		"	3	1,000	5/10	905		1/10	210
					"	3	4,000	1/10				
10/26	44122	10,000	3/5	5	Intraper.	1	62.5	8/8			9/9	
		2,000	3/5		"	1	250	4/9	231		5/10	276
		400	1/5		"	1	1,000	0/10			1/8	

Note: Test cultures injected intracerebrally.

* Lot No. 19 except on 10/26, then lot No. 36.

† Lot No. 28 tested 5/17, 7/13, and 8/30; lot No. 23, 8/27; lot No. 38, 10/26.

‡ Calculated by method of moving averages, the span being 2 (data for adjacent dilutions averaged prior to the interpolation).[10]

REACTIONS IN PERSONS

Data on the immunizing value of the whole fluid-culture vaccine in children are not yet available. However, some information has been obtained on the reactions induced. We are indebted to Dr. Edward A. Lane of the Westchester County Department of Health for the following observations:

Ninety-three children (75, 3 years old or less) were immunized with the fluid-medium vaccine; 111 (83, 3 years old or less) received the state routine phase-I product. With few exceptions, each child received a total of 8 ml. of vaccine in three injections at weekly intervals. No reactions were reported in 51 (54.8 per cent) of the children immunized with the fluid-medium vaccine or in 46 (41.4 per cent) immunized with routine material. The reactions that did occur, local or systemic, following the administration of either type of vaccine were not severe. There was thus no evidence to suggest a greater toxicity in the fluid-medium vaccine.

SUMMARY AND CONCLUSIONS

A modified fluid medium based on Hornibrook's formula has been developed which provides satisfactory conditions for the cultivation of *Hemophilus pertussis* in the preparation of vaccine. The addition of copper and iron to the medium was found to stimulate growth, and the optimum amounts of these and other ingredients have been established. Accessory

growth factors are furnished by a yeast dialyzate, and the completed medium can be sterilized by heat. It offers definite advantages over the complex blood agar customarily employed, in that vaccine preparation is simplified and the cost of production lowered.

The whole fluid culture vaccine, according to laboratory tests, appears antigenically superior to vaccine prepared from blood-agar cultures. The intracerebral injection of live pertussis culture in mice previously immunized with pertussis vaccine provided a valuable laboratory procedure for gauging the potency of the vaccine.

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Child Health Day, 1946, on May 1

It has been announced by the National Boys and Girls Week Committee for the United States that the period April 27 to May 4 will be observed as National Boys and Girls Week, with Child Health Day falling on Wednesday, May 1. Information about plans and suggestions for carrying out the program, including a poster and a manual of suggestions, may be obtained free of charge from the committee, 35 East Wacker Drive, Chicago 1, Ill.

The Public Health Nurse in the Department of Health

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THE war period was a hard one for the public health nurses who stayed home for, like everyone else, we felt greatly frustrated by the amount to be done and the reduced staff with which to do it. We have learned some valuable lessons, however, that should point the way to improved service in the future. One benefit accruing to us was the fact that, if the nurse was to cover her work at all, she was forced to think in terms of relative values and to ask herself repeatedly:

What type of visit comes first when I cannot make them all?

How much more can families do for themselves?

How much and what can be taught to groups rather than to individuals?

What am I doing that could be done equally well by volunteers or non-nurse employees? (It is interesting to note in passing that, for the first time in some larger cities, public health nursing services during the war have been able to secure adequate clerical assistance, because nurses were unavailable and clerks a little less so.)

In the light of our war experience, I would like to discuss some of the next steps ahead, and what we must do to utilize to best advantage the increased personnel that we hope will soon be available. One does not have to talk with more than a few of the nurses returning from military service to realize that many of them do not want to return to luxury services—they want to work where they are really needed. If we are to attract them to the public health nursing field and hold them there, we cannot return to the "good old days," but will have to develop a sharp sense of relative values throughout our entire service.

What of the public health nursing services in health departments? What are our urgent problems that need our best thinking today? With one-third of the counties of this country without any public health nursing service in rural areas, with most of our country without really adequate provision for nursing care for those sick at home, with need for almost twice as many qualified public health nurses as are now available if we are to have even the minimum of 1 to 5,000 population, what can we do to give each nurse her right to be of maximum usefulness, to utilize to the limit her knowledge of public health nursing? What is good public health nursing in 1946?

The first principle of public health nursing administration that we teach our public health nursing students is that the total community health program should be viewed as a whole; and that services and agencies should recognize their contribution to that whole, and not, as is so frequently done, carry on their work as though they were independent of it. Moreover, a community health program is a *planned* program, planned by all participating groups under the leadership of the health officer. So far as public health nursing is concerned, the obligation of the health officer does not rest with planning the program of the nurses em-

ployed in his agency—it is to see that *all* public health nurses in his area are brought into the planning, and their work coördinated in the total program. The corollary, then, of this first principle of having the total community health program a planned program, is that the personnel of the department of health must be willing and able to give real leadership.

Planning should have as its objective the development of the best possible service to the community, the elimination of duplication and overlapping so as to meet as many of the health needs as possible, and to stretch the available staff over the most essential services before asking the community for increased funds for increased services. Public health nursing time is the most expensive single item in the budget of the health department, and it therefore becomes a part of wise planning to see that each visit made by a public health nurse is wisely spent and is a planned visit.

If we are to line up our community health needs in the order of their relative importance and attempt to eliminate wasteful visits, where does that land us? The most obvious and outstanding waste is probably found in those communities where public health nurses are employed by both private and public agencies. In cities of average size, at least, we know that multiplicity of agencies means a more expensive administrative overhead cost, more time spent on travel and less in actual public health nursing and, unless very careful planning is done in advance, there results a much less sharply defined program with many essential needs unmet. In 1946, therefore, the challenge to the health officer and the nurse in the health department is first that of bringing about an active community study of the total public health nursing needs, a frank evaluation by all concerned of unmet needs, and a friendly discussion of what could result from pooled service under unified leadership and administration. Every public health nurse and health administrator should watch with great interest the experiments being conducted in such cities as Minneapolis and Seattle * where the visiting nurse association and the department of health nursing services have been pooled for an experimental period. The administrators of the Seattle service say in part, "The merger of the private visiting nurse association with the official Health Department in Seattle under a generalized nursing program including bedside care has proved to be a real success. . . . The continued separate existence of the two nursing agencies was both costly and inefficient, so it naturally followed that the two should merge." They describe in detail the ordinance passed by the City Council in order to effect the merger, the terms of agreement signed by the Visiting Nurse Association, the method used to bring all nurses under Civil Service, the retention in the merger of all the interests and assets of both groups. In appraising the results they state, "We made the same number of field visits after the merger as before despite the fact that we always had about one-fourth fewer nurses. . . . The generalized program was found to be more flexible and more productive of results; it eliminated useless duplication and distance of travel. . . . There was no loss in the quantity of work done for the specialized services as so many fear in a generalized program. . . . The educational services of the nursing division to all age groups increased 100 per cent." The Seattle study also describes the method taken to allow for the collection of fees by all of the nurses, and emphasizes the improvement made throughout the entire service as a result

* Dr. Westman, Health Officer for Seattle, and Miss Prindiville, the nurse director, have written a very helpful article in the *Public Health Nursing* magazine for June, 1945.

of encouraging each nurse to give the complete service in her families.

In this connection I would like to comment on the study of voluntary health agencies recently completed, which in effect recommends that all of those functioning in one community pool their strength to form one voluntary agency under one administration. In my personal opinion, I do not see visiting nurse associations joining in this fashion with other voluntary health agencies, since in the main the latter are not direct service organizations. Instead I believe we will do better to pool our program and service with that of the health department, for as two direct service agencies our interests are much more similar. This is a strategic time, therefore, to be conducting such studies on coördination, and we look to our departments of health to begin them. States like New York for several years have been advocating the development of correlated services, and it has been accepted throughout that state as the policy of the Bureau of Nursing of the State Health Department. In this connection also we can fortify our courage, if necessary, by turning to the statement made by the State and Territorial Health Officers a few years ago and to that on health department functions issued by the American Public Health Association. In essence both believe that it is proper and important that departments of health see to it that home nursing care of the sick be correlated with teaching services.

So much then for our planning to bring all of the public health nurses of a community into a generalized program. Let us now move on to consideration of another principle of public health nursing—that is, that no service, even though generalized, can be stronger than the *intake* policies under which it operates. Too many public health nursing programs do not control their intake policies, but rather are shaped by them. As a result, the families who know how to use and call the nurses get the service, with little regard as to whether these same families are the types that most need it and can best profit from it. This is very true in the typical visiting nurse association and to a lesser degree in departments of health.

In 1946, therefore, public health leadership involves leadership through group discussions of relative values of types of public health nursing visits. In what groups in our community are our greatest sickness and death rates—by ages, by geographic distribution, by occupations, by income, and by racial groups? To what extent are our nursing intake policies designed to bring these groups and problems to the attention of the public health nurse? Where are our present visits going and how far do they aim at these public health needs? In many communities there is wide discrepancy between basic needs and actual service given. Attempts to correct this difference turn one's attention at once to the rôle of the hospital in the community health program and of its usual omission from it; and point to the necessity for developing nursing service in the community as an entity that unites home and hospital, curative and preventive nursing services, into one total program for the good of the patient. To accomplish this, a system of written referrals back and forth is necessary, which serves to refer types of patients and families automatically, and is not limited to the very occasional referral for an acute social situation when the nurse or doctor happens to remember.

By way of illustration, take the problem of the premature infant and the contribution which the public health nurse can make to its care. Here we have a group with high morbidity and mortality rates, a group to which a very expensive type of care is given while in

the hospital. A Negro pediatrician first called my attention to the waste involved in this care when he stated that in the hospital where his clinic for sick children was located it took less than a month from the time the premature was discharged home until it landed, a sick infant, back in his clinic. And he sagely added that good public health nursing service automatically directed to those homes could largely have prevented this.

We public health planners must be concerned with the *total* care given to prematures, making sure first that the hospital service given is safe and adequate. Next our plan should provide that a public health nurse routinely make a visit to the home of every premature infant before it is discharged from the hospital, and should insure that it will be discharged only when the public health nurse states that the home is fit and ready to receive it. It is extravagant to give weeks of expensive hospital care to a baby, only to discharge it to a home where the older children have a communicable disease or where facilities are inadequate for warmth, or where the mother lacks understanding of how to feed it. Therefore written coöperative agreements secured through joint planning of all groups concerned (medical, hospital, and public health) under the leadership of the health officer and his nurse, must develop a method whereby every such infant is reported at least two days before discharge and final plans are held pending report of that visit. The agreement further should provide that the public health nurse will also visit the day following discharge, and at regular intervals thereafter until the family doctor is sure that the baby and its family are able to make a go of it. Such visits take priority at the top of the list of visits that should be made promptly.

Or let us take children with rheumatic fever, who surely need good health supervision from public health nurses following their discharge from the hospital for convalescence at home. What happens on their return home? Is the family correctly interpreting the instructions regarding rest and play? Is the home such that a convalescent routine is possible? A community program for care of such children must include the participation of the public health nurse on an overall planned basis, because of the nature of rheumatic fever itself, not just because of the striking inadequacy of an occasional family.

Since public health nurses cannot give prenatal instruction to all expectant mothers in their area, does everyone concerned understand clearly which types they will follow, for how many visits, and why? Has such a need been discussed under department of health leadership by all the groups involved, a conclusion jointly arrived at, and a written agreement drawn up which insures automatic referral?

An admirable plan for the better distribution of hospital facilities for the United States has been embodied in Senate Bill 191, carrying the approval and support of medical, hospital, and public health authorities. You are familiar with its provisions for the smaller cities and rural areas whereby the hospital and public health programs are coördinated and the health officer given a rôle of community leadership in the total program. While we certainly need a much better distribution of hospitals and many new institutions to give adequate service, it may be some time before we actually achieve them. In the meanwhile, we need not sit back waiting for the hundreds of millions to be made available, for there is an immediate coördinating job to be done whether or not we ever get improved physical facilities—perhaps more needed when our facilities

are poor. The U. S. Public Health Service is proceeding to develop architects' sketches and floor plans for these new projected facilities. Concurrent with this, we in the communities should be developing *our* overall plans for unified *service*. Both blue prints are necessary, but one should not wait for the other.

The original need in health departments for the services of public health nurses to assist in the control of the acute communicable diseases has changed with the years, largely from that of supervising the isolation of sick children to that of reëmphasizing preventive measures, family by family, with each new generation of children. The work of the public health nurse in 1946 is becoming increasingly that of persuading families to get medical services *before* they are ill, and of early case finding.

Dr. Shafer in a paper on control of the venereal diseases, has emphasized the shift in relative importance of medical treatment to case finding and follow-up. Here the public health nurse comes increasingly into the program. Moreover, as one studies in 1946 the specific needs of various population groups as shown by a breakdown of local health statistics, the problems of the aging population become distressingly evident. Early case finding in this age group is an obvious need, and the public health nurse's function in the reduction of deaths from cancer, heart disease, diabetes and other organic diseases of the older age group is at once apparent. But we will get little public interest or support for our program if we stop at case finding with this group. With the age of our population increasing, we are having an acceleration of the problem of securing adequate care for the chronically ill, since we have had no corresponding increase in available facilities. Here is a group for whom community planning cannot be postponed, and no better leadership could be found to initiate such planning than that emanating from the health department itself.

The recent study in New York State of the care of the mentally ill, calls attention to the fact that a large per cent of the beds in state mental hospitals are occupied by types of patients for whom custodial care only is needed. Here is a program set up to care for the acutely ill, being retarded and complicated by this large group of senile patients because no other provision is made for them, while long waiting lists of acutely ill are unable to gain admission.

Connecticut has just completed a state survey of chronic illness among the indigent, and has made a series of recommendations for improvement of facilities for such care. As a nurse I was especially interested in the fact that, included in the plan with recommendations for special types of institutions, were recommendations for an increased number of nursing homes *under adequate medical direction*, and much more home care from public health nurses. The report states that home nursing care can to a considerable extent supplant institutional care if the public health nursing personnel is sufficiently increased. In this connection we should realize that in our communities, as more acute illness is hospitalized, the case load of the average visiting nurse association is weighted more and more heavily with chronic patients; and the well qualified visiting nurse is getting increasingly restless, feeling that in such a program she does not utilize her public health knowledge to the full. She agrees at once that such patients must have home care, that the public health nurse has a responsibility and much to offer in such homes, but she herself asks for some professional variety.

I have not time to go into the use of

the practical nurse in this program and the contribution that she can make if properly supervised. Even with her utilization the function of the public health nurse is evident. From the point of view of the shift in community needs, therefore, the completely generalized nursing program with one nurse to a district intrigues her, offering her as it does the chance to care for all of the public health nursing needs of the family from infancy to old age. And at this point it is unnecessary to remind practical public health administrators that the program which gains the most community appreciation and support is that one which gives the direct service for which the family has an urgent need at the moment. For in such moments a teaching program seems theoretical at best and frequently irrelevant in the light of the urgency for direct care. The success of visiting nurse associations from coast to coast in gaining financial support and the affection of the public is witness to this fact.

We have been discussing the expanding rôle of the public health nurse in the health department when working in a community health program which operates under the recognized leadership of the health officer. Such a program requires that she herself be capable of leadership, in her area acting as the representative of the health department and the public health nursing profession to bring about the most effective use of all resources to meet the health needs of her people. She must have a good scientific knowledge both of curative and of preventive nursing; she must have a practical working knowledge of vital statistics and the epidemiological approach to health problems; she must understand people —normal healthy people of all ages— the deviations caused by illnesses of various types, the problems created by acute mental illness; she must see her rôle as a part of the group who work to find community solutions to community problems, and who exert the type of leadership in the community which the public recognizes as truly professional. No health officer working alone can deliver professional community leadership—he succeeds in direct relation to the group leadership he creates among his public health personnel. He knows this, and he appreciates that he can move forward only as the members of his group also understand the public health science on which this planning is based. Time is too short for him to be able to go back and teach these fundamentals to his personnel. There is too much wanting to be done. And the fun and challenge of his work is to be found in direct relation to the ability of his coworkers to pick up the ball and carry it along. Professional leadership means professional teamwork.

Therefore, it seems to me we should all be agreed that in 1946 the public health nurse in the health department must be a nurse exceptionally well prepared in public health nursing and public health science. There is no place here for the amateur, for the pace is too swift. At present few schools of nursing pretend to include adequate preparation for public health nursing in the basic curriculum. Minimum preparation, as outlined by the National Organization for Public Health Nursing and the American Public Health Association, consists of a year's university study in public health nursing following the school of nursing work. If the nurse does not now have it, the health officer should see that she gets it as soon as possible. Leaves of absence will be possible as more nurses are available. We look to the bureaus of public health nursing in state departments of health and to the universities to find scholarship and loan funds for those unable to study otherwise. An agency's current

staff education program is good in itself and important, but it cannot replace this essential preparation.

Perhaps the health officer has the right to challenge the public health nursing profession, and especially the universities at this point, and to ask that we place greater importance not only upon the education of the nurse for public health, but upon her selection. If she is to be both nurse and teacher, family health counsellor and friend, she must herself be a mature, emotionally stable person, able to be a loyal, dependable part of the public health team. I admit that many times we have not exercised sufficient selectivity or placed sufficient importance upon these personal qualifications. In the war years some fine nurses, unprepared in public health nursing, have been employed in health departments to fill vacancies made by the demands of military service. These nurses have proved that they have the *personal* qualifications needed for public health work, and it should be our concern that those who wish to remain in the field should now add the professional qualifications which are equally essential for a real career in public health nursing.

I have said that few schools of nursing give adequate preparation in public health nursing, but that does not mean that it cannot be done. We have in this country a number of university schools of nursing, such as those at Skidmore, Vanderbilt, and Yale, whose graduates are prepared to enter the field of public health nursing at staff level without stopping for the additional year of study now necessary for graduates of other schools. Nurse educators badly need the help of all interested members of public health associations to lend support to their efforts to strengthen the basic education of all of the students in our schools of nursing. All students graduating from schools of nursing should have had experience beyond that of the usual medical, surgical, pediatric, and obstetrical services. As we develop community health programs with the nursing services in hospital and community linked together, as nurses in hospitals utilize their opportunities to teach health and sickness prevention while they give care to the sick, we can see that every nurse must have a good working knowledge of communicable disease and tuberculosis nursing, of the care of well children and of mental nursing. Facilities for these experiences are available in every state if wisely utilized. Public opinion must support our efforts to require such experience for all students, for no community service can be any better than the professional preparation of the group that renders it.

At our annual meetings and in our publications we have had valuable and stimulating discussions of public health measures for control of various types of communicable disease. I am calling attention to the fact that we must have equal concern for the better *distribution* of nursing service, for without it we have no assurance that the nurse will get to the right place at the right time.

In summary then, I would assert that probably no profession today faces greater challenges than does that of public health—and no group has greater opportunities than has the public health nursing group. We, under aggressive, constructive leadership from our health departments, can redistribute the nursing services now available to our communities so that they will give values far beyond those now being given, and through application of our scientific knowledge make our public health dollar pay still greater dividends.

State Variation in the Collection of Reportable Disease Statistics

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THIS paper is presented as the first in a series of studies of the current status of morbidity reporting. In a recent paper,[1] Perrott outlined the important problems of morbidity reporting from the standpoint of national public health activities as:

1. Measurement of the level of underreporting
2. New methods for getting better coöperation from physicians and institutions which furnish data
3. Selection of diseases to be reported from all states
4. Reporting and recording certain characteristics about the diseases and individuals in order that the data will have greater value as a measure of the state of health of the nation

To analyze these problems, a series of pilot studies in coöperation with state and local health authorities is being conducted. Since the accuracy and completeness of the statistics published by the Public Health Service are related to the methods of collecting and filing morbidity data by the state health departments, this first paper summarizes an inquiry into such procedures.

The need for nation-wide statistics on the incidence and prevalence of epidemic diseases was recognized by law nearly 70 years ago. The National Quarantine Act of 1878 and the 1893 revision authorized the Secretary of the Treasury, who had jurisdiction over the Marine Hospital Service, to obtain reports of cases of infectious or contagious diseases both from state and municipal health authorities in the United States and from consular offices abroad. An Act of Congress in 1902 made it the duty of the Surgeon General of the U. S. Public Health Service to prepare and distribute forms for the collection and compilation of morbidity statistics and have these statistics compiled and published as part of the health reports of the Service. The Public Health Service Act of 1943 contains a similar provision.

Since 1878, procedures for the collection and publication of national statistics on the reportable diseases have developed through the coöperative efforts of the Public Health Service and the several state health departments. These efforts have been stimulated primarily by the Annual Conferences of State and Territorial Health Officers which have been held since 1903.

As a result of the discussions at these Conferences of the problem of improving morbidity reporting, several important steps have been taken. In 1913, a model state law for morbidity reports and a model notification blank were adopted by the Conference. The model law proposed a list of 41 diseases, in addition to occupational diseases and injuries, to be reported. Since that time a number of states have passed laws based on the model. Over half the states have adopted a reporting card similar to the model notification blank.

In 1914, the Public Health Service appointed collaborating epidemiologists to serve with certain state health de-

partments. Later this plan was extended and assistant collaborating epidemiologists were appointed in local jurisdictions. These persons are agents of the federal government, therefore they are entitled to use penalty envelopes and cards in the collection of morbidity data. This use of penalty mail was a considerable stimulus to reporting, since it saved physicians the trouble and expense of postage. Some ten years later the creation of a morbidity registration area was suggested,[2-7] but such an area has never been set up.

REPORTING PROCEDURES

An analysis by Fowler[8] of laws regarding reportable diseases indicates that there is great variation from state to state both in the number of diseases reportable and in the diseases included. The number of diseases reportable (exclusive of occupational diseases) varies from 28 in Virginia to 66 in Iowa. Occupational diseases are reportable in 24 states. Only 12 of the communicable diseases—conjunctivitis, diphtheria, measles, meningitis, poliomyelitis, scarlet fever, smallpox, syphilis, typhoid fever, tuberculosis, undulant fever, and whooping cough—are reportable in all 48 states and the District of Columbia. The average number reportable (exclusive of occupational diseases) has increased from 40 in 1933 to 48 in 1944.

State health departments differ in the organization of their reporting systems and in the procedures followed in the collection of morbidity data. Many of these differences are due to peculiar conditions and needs which prevail in the individual states, and are related to the evolution of the health departments in the states.

In order to study the reporting procedures among the states, information on the formal aspects of their procedures was obtained from the state health officers by means of a questionnaire. Each state health officer was asked the title of the division or divisions responsible for collecting and compiling morbidity data, the steps taken to evaluate the completeness of reporting, and, for each of 23 diseases, the types of files maintained. In addition he was asked to submit samples of the report, file, epidemiologic and other cards and records used in collecting and maintaining morbidity records.

Uniform requirements — There are only two reporting requirements which are uniform in all states: First, every state requires that cases of notifiable diseases be reported by the attending physician or, in the absence of a physician, by a householder, head of family or person in charge of the patient. Second, the reports are to be made to the local health authority. In actual practice, these requirements are frequently not carried out. In effect, therefore, even these procedures vary from state to state.

Reports received by local health authorities—There are several basic types of cards used for the physician's report to the local health authority. Seventeen states use the same card for all diseases, 13 have a special card for tuberculosis cases, and 29 for cases of venereal disease. Twenty-seven states and the District of Columbia use an individual penalty card similar to the model notification form. Nine states use a multiple case penalty card. Two states use a stamped card, 3 a card requiring postage, 3 a form other than a postcard, and 4 do not have a regular communicable disease report form.

There is variation from state to state in the items of information on the cards. The name and age of the patient and the name of the disease are the only items included on all cards. The sex of the patient is included on all but 2 of the 45 cards and his address on all but 3. Race or color is asked for on 82 per cent of the cards and the date of

onset on 71 per cent. Approximately three-fourths of the cards call for the name and address of the person reporting the case and the date of the report. A list of the diseases reportable in the state is printed on 76 per cent of the cards. Marital status, occupation, and place of occupation or school are each on less than half of the cards. Data about the household are included on only a few cards. Twenty-six cards have a note to use a special card for reports of venereal disease and 7 for reports of cases of tuberculosis (Table 1).

TABLE 1

Analysis of Communicable Disease Report Cards

Items Included on Card	*Number of States*	*Per cent*
Total states with cards	*45*	*100*
List of notifiable diseases	34	76
Description of patient		
Name and age	45	100
Address	42	93
Sex	43	96
Race or color	37	82
Marital status	9	20
Occupation	14	31
Place of business or school	21	47
Description of household		
Name of head	11	24
Occupation of head	2	4
Number in household	9	20
Number of food or milk handlers	12	27
Description of disease		
Name	45	100
Date of onset	32	71
Date diagnosed	9	20
Source of infection or place contracted	12	27
Person reporting		
Name and date	37	82
Address	32	71
Note to use special card for:		
Venereal diseases	26	58
Tuberculosis	7	16

Reports received by state health departments—In most states the original report cards received from physicians are forwarded to the state health department after a record has been made in the local office. In some states, however, these cards are retained by the local health officer and copies or summaries sent to the state health department. A few states require that physicians report cases of certain diseases both to the local and to the state health officers. An immediate telegraphic report to the state health department, either by the attending physician or by the local health officer, is required by many states for cases of such diseases as meningitis, poliomyelitis, diphtheria, and smallpox. Daily, weekly, or monthly summaries of the number of cases are sent to the state health department by the local health officer in many states.

Division of state health department receiving reports—In 11 states all morbidity reports are received, tabulated, and filed in one statistical or preventable disease division. In 3 additional states all the reports are received by a division of preventable disease but are tabulated and filed by a central tabulating or statistical section. Twenty-nine states and the District of Columbia have a separate bureau which handles venereal disease reports. In 16 states tuberculosis reports are received by a special division. Eleven divisions of industrial hygiene and 4 divisions of cancer control receive direct reports.

Checking of reports—The reports received by the state health department are checked against death certificates in 35 states and the District of Columbia. In 20 states, reported cases are checked against both death certificates and laboratory reports. In 1 state they are checked against laboratory reports alone. Two states check death certificates for tuberculosis only. A few states also check reported cases against selective service examinations, hospital or clinic records, newspaper reports, or other data. Ten states make no outside checks.

Filing procedures—To obtain information as to the types of files used by the state health departments, the following questions were asked about 23 diseases:

1. Is the disease reportable?

2. If reportable, are cases reported to the state by name of patient?
3. If reportable by name, is there a separate file for the disease?
4. If reportable by name, are reports filed alphabetically by name of patient?
5. If reportable by name, are individual case records put on punch cards?

Very few states keep uniform files for all diseases. The extent of the variation in the type of files can be demonstrated by an analysis of the systems used for the recording of four diseases which are reportable in all states—diphtheria, malaria, measles, and poliomyelitis (Table 2).

TABLE 2

Number of States Using Specified Type of Files

Type of Files	*Polio-myelitis*	*Diphtheria*	*Malaria*	*Measles*
Total, disease reportable	49	49	49	49
Total, disease reportable by name of patient	45	39	37	32
Disease separate, alphabetically by name of patient	27	18	20	10
Disease separate, not alphabetically by name of patient	13	12	9	8
Not filed separately	5	9	8	14
Punch card system	17	15	14	12

Alphabetical files for an individual disease are maintained most frequently for serious diseases such as poliomyelitis, and least frequently for childhood diseases such as measles. The majority of the states maintain separate files for cases of poliomyelitis. More than half of them maintain separate files for diphtheria and malaria, but only a third separate the cases of measles.

Punch card systems are used to a greater or lesser degree in 29 states. Eleven of these use the system only for venereal disease records, 6 for special groups of disease, and 12 states use punch cards for all reportable diseases.

DISCUSSION

At present, it is posssible to secure nation-wide statistics for only 12 diseases. For each of the other 50 or more reportable diseases no national totals can be arrived at because none of these diseases is reportable in all states. Since the reasons for the inclusion or exclusion of many diseases in the reportable list may be based on historical rather than current epidemiological considerations, critical study of the present state and national reporting requirements would seem to be desirable. A first approach to this problem has been made by Stevick.[9] On the basis of his studies the North Carolina State Board of Health adopted a list of 35 diseases to be reported in that state.

Within the limits of the diseases required to be reported, considerable variation exists among the states in the procedures used in the reporting and recording of morbidity statistics. Many of these variations are such as to affect the completeness and comparability of the statistics, and even the immediate usefulness of the reports received.

1. Much has been made of the value of penalty cards in stimulating reporting. If the effect of their use is significant, then it would be expected that a difference in completeness must exist between states which do and do not use penalty cards. Similarly, differences in completeness may be caused by the use of individual cards in some states and multiple case cards in others. Further study is needed to evaluate the relative advantages and disadvantages of both types of cards.

2. Within the framework of the present reporting requirements there is great variation as to the inclusion of such details as address, sex, and race of patient, date of onset, and name of person reporting the case. In some states part of this information is secured when the epidemiologic follow-up is made. Presumably information should be obtained on the report card to the extent, and only to the extent, that it is of value

in the investigation and control of disease.

Studies on the incidence of disease are of sharply limited value when data on age, sex, race, and date of onset, are not available. At the present time, neither at the national level, nor even in some states at the state level, can the incidence of disease be studied in terms of these very important factors. There seems to be a real question, in the face of the variety which exists, as to the optimum amount of information which should be included in the original reports.

3. The accuracy and completeness of reports may also be affected by the organizational set-up of the state health departments. In some states one division receives all reports, in others separate divisions handle the reports of certain diseases. In the latter case there may be an increase in accuracy if extra checks are made; on the other hand, such gains may be offset by lack of coördination between the units of the health department.

4. Underreporting of cases is known to exist to a greater or lesser degree for all diseases and in all places. Health departments routinely receive death reports, laboratory reports, and other collateral material about illnesses. If these data are checked against morbidity reports, two useful purposes are served —a crude index of the completeness of reporting can be obtained, and at the same time, unreported cases are picked up, increasing the completeness of reporting.

Since these checks are not made uniformly by all states, the net result is probably to intensify existing differences in completeness and comparability of reporting. This is at least suggested by an analysis of the average number of cases of meningitis, poliomyelitis, scarlet fever, and pneumonia reported per death in the 5 year period 1938–1942. The 36 states (including the District of Columbia) which make a routine check of death certificates reported an average of 38 per cent more cases of meningitis per death, 20 per cent more cases of poliomyelitis, 51 per cent more cases of scarlet fever, and 38 per cent more cases of pneumonia than do the 13 states which make no such check (Table 3).

TABLE 3

Relation between Checking Procedures and Ratio of Cases to Deaths

	Average Cases per Death 1938–1942 for States Which:	
Disease	*Check Death Certificates*	*Do Not Check Death Certificates*
Meningitis	3.3	2.4
Poliomyelitis	10.0	8.3
Scarlet fever	231.5	153.1
Pneumonia	2.2	1.6

5. A useable filing system can be one of the most helpful tools of the morbidity reporting system. Separate files by disease and by name of patient make it possible to find and eliminate duplicate reports; and, for chronic diseases, to separate new from recurrent or relapsed cases, or cases coming under the care of an additional agency. Such files also make it easier to use collateral data for checking the completeness of reporting. Here, existing differences in procedures have a real effect on whether reports are of incidence or prevalence, as well as affecting the completeness and accuracy of the reports.

CONCLUSION

The value of national morbidity statistics hinges on the completeness, accuracy, and comparability of the data emanating from states. A review of the present status of morbidity reporting indicates that the lists of diseases reportable, the amount of information required about each case, and the manner in which the reports are transmitted and recorded have considerable variation from state to state. It follows that the

validity of comparisons among the states may be questioned and an accurate statement of the nation-wide incidence of any reportable disease cannot be obtained.

It is now 32 years since the first comprehensive discussions and recommendations as to the notification of the occurrence and prevalence of certain diseases were made by the Conference of State and Territorial Health Officers. Since that time, reporting procedures in the various states have developed in different ways according to the organization of the health departments in the states. If the resulting experiences of the states were brought to bear on reporting problems, it should be possible to measure the value of alternate procedures and to arrive at those which make for the most complete and accurate reporting of the diseases that are of public health importance today.

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Massachusetts Develops Blood Program

Geoffrey Edsall, M.D., Director of the Division of Biologic Laboratories of the Massachusetts State Department of Public Health, Boston, has announced that the blood program recently authorized in Massachusetts began operation in December, 1945, when the mobile unit visited five cities and towns in the southeastern part of the state, collecting several hundred pints of voluntary blood donations. Dr. Edsall reports that the department's emphasis is now placed on fractionation of blood to fit the program to the newly released supply from the American Red Cross of Army-Navy plasma. The new laboratory of the department, in Jamaica Plain, is expected to be occupied during April, and in the meantime fractionation is being carried out on a limited scale with the collaboration of the Department of Physical Chemistry of the Harvard Medical School, Boston.

Plans have been submitted to the Legislature for expansion of the program to include two mobile units so that the state may be covered more effectively and an adequate supply of blood for the needs of the state may be obtained.

Dr. Edsall reports that it is the intent of the department, as soon as blood collections begin to come in on a regular schedule, to undertake the distribution of whole blood on a small scale at first, gradually expanding the service as experience is accumulated in solving the problems which it presents.

Disinfection of Air by Germicidal Vapors and Mists*

Laboratory Section

DURING the past year several studies on the effect of dispersing glycol vapors into atmospheres inhabited by human beings have been published. Certain of these investigations have been concerned only with the bactericidal activity of the vapor, while the others were directed primarily toward determining whether or not the incidence of acute respiratory disease could be diminished by maintaining a constant germicidal concentration of the glycol in the atmosphere.

One study on the effect of triethylene glycol vapor on a single respiratory pathogen, namely, the hemolytic streptococcus [1, 2] reported in last year's summary, was extended to include a period of relatively low humidities, i.e., 20 per cent to 30 per cent relative humidity.[3] While the reduction of airborne streptococci was not quite so pronounced as when the relative humidity was maintained at 40 to 50 per cent (a reduction of 95 per cent occurred under these conditions), the effect was still substantial, being only 15 per cent less at the low humidities.

Another study on the intermittent dispersal of propylene glycol into the atmosphere of a crowded room [4] showed a diminution of 80 per cent in the total bacterial content of the air which lasted for about 15 minutes only. Repeated dispersions of the glycol vapor every 15 minutes resulted in a fairly constant lowering of the bacterial population of the air.

The report of the 3 years' study of the clinical application of the disinfection of air by glycol vapors in a children's convalescent home showed a marked reduction in the number of acute respiratory infections occurring in the wards treated with both propylene and triethylene glycols. Whereas in the control wards 132 infections occurred during the course of the three winters, there were only 13 such instances in the glycol wards during the same period. The fact that the children were, for the most part, chronically confined to bed presented an unusually favorable condition for the prophylactic action of the glycol vapor.[5]

An investigation of the effect of triethylene glycol vapor on the respiratory disease incidence in military barracks [6] brought out the fact that, while for the first 3 weeks after new personnel entered the glycolized area the disease rate remained the same as in the control barracks, the second 3 week period showed a 65 per cent reduction in acute respiratory infections in the glycol treated barracks. Similar effects were observed in respect to airborne hemolytic streptococci and throat carriers of this microörganism.

Several Canadian workers [7] made a brief study of introducing propylene glycol into army barracks. They found that bactericidal concentrations could not be employed without condensation of the glycol on the walls, windows, etc. (triethylene glycol is greatly superior in this respect). While the study was not continued long enough to secure any significant data on the incidence of respiratory infection in the test and

* Referee's report to the STANDARD METHODS COMMITTEE FOR THE EXAMINATION OF GERMICIDES AND ANTIBACTERIAL AGENTS. Committee authorized 1941. Published Reports, *A.J.P.H.*, May, 1943, Aug., 1944, and Aug., 1945.

control barracks, they did find a reduction of air-borne bacteria in the glycol containing atmosphere amounting to 65 per cent as compared with air of the control spaces.

The use of sodium hypochlorite has been further studied as an aerial disinfectant[8] by means of introducing this agent in the form of hypochlorous acid gas. While this vapor has a marked bactericidal action, it requires a high relative humidity, 70 to 90 per cent, for its optimum effect and also exerts a corrosive action on many metals. Its usefulness would seem to be limited to crowded spaces where there is little ventilation and presumably a high relative humidity.

Substances other than those cited above are being studied for their aerial disinfecting properties. A report on the use of lactic acid as a germicidal vapor[9] indicates that this compound exerts a marked lethal effect on air-borne bacteria when employed in concentrations of 1 gram of lactic acid dispersed in 200,000,000 ml. of air or less, approximately the same order of effectiveness as triethylene glycol. The difficulty about employing this agent in atmospheres occupied by human beings is that it has a slight odor.

Progress continues in the development and testing of apparatus for the dispersion of glycol vapors and the control of their concentration in the air. While the principles of such apparatus have been rather satisfactorily worked out, the actual production of dependable instruments has not yet been achieved. Since this is an entirely new field, a great deal of detail has to be learned by trial and error. In respect to vaporizers, there is little to add to the summary of a year ago. Concerning the device for the automatic regulation of glycol vapor in the air, the glycostat, more can be said. This instrument has now been calibrated so that variations in the intensity of the light reflected from the glycol-condensing surface of the wheel can be read directly as corresponding degrees of saturation of the air with the glycol vapor present.[10] Thus the glycostat can be set for any desired per cent saturation of glycol in the air, and the vaporizer will maintain this concentration. By means of connecting the glycostat with a milliampere recorder we can obtain a continuous record of the per cent saturation of glycol present in the air, which is of course of great value in conducting experimental studies. It has been found that relative saturation of the air with a glycol vapor is of much more significance in respect to germicidal activity than is the actual content in milligrams of glycol per liter of air.

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A PRAYER FOR IMAGINATION

THE psychology of the United States of America does not present a very heartening picture today. Bulging with food and oozing prosperity, we complain about butter and nylon stockings. Our labor unions strike for higher wages—often with justification relative to rising prices. Our business leaders fight with equal vigor—and less justification—for increased profits. Powerful lobbies attempt to block the vital national housing program and the equally important program of social security.

Our contentious congressmen are—too many of them—concerned only with personal prestige and the defense of special vested interests. They appeal to the basest motives by invoking a violent and selfish nationalism to delay every step proposed for devoting our surplus to the salvation of a starving world. We can only hope for the realization of that most moving of all prayers, "Father, forgive them, for they know not what they do."

We are like Helen Keller at the beginning of her career, with no eyes to see, no ears to hear, cut off from the world in a terrible and blinding isolation of the spirit. May we gain the imagination, as she did, to learn that there are realities beyond the objects which we can touch with our hands.

Statistics from Greece, recently released by UNRRA,[1] may help the public health worker to gain a glimpse of what famine really means—famine such as will again prevail this year if the United States does not awake from its lethargy.

In thirty departmental capitals of Greece, the birth rate in 1940 was 22 per 1,000 and the death rate was 13. In 1942, the birth rate was 12 and the death rate, 37.

For Athens and the Piraeus, where more detailed statistics are available, the general death rate similarly tripled between 1940 and 1942. Though there were no serious outbreaks of acute epidemic disease, the infant mortality rose from 90 to 231 per 1,000 births; and the tuberculosis death rate for 1942 reached 456 per 100,000. Of a total of 41,000 deaths, 17,000 were cases of simple starvation. Analysis of deaths by age-periods showed that the mortality at 50 years of age

was equal to what it was in 1940, at 70 years of age. In 1943, with the influx of relief supplies the death rates returned to normal.

More recent statistics [2] for certain European municipalities show that the infant mortality rates in three large Dutch cities increased by from 132 to 176 per cent *in 1945*, as compared with 1944; and, in seven French cities, the corresponding increases varied from 24 and 52 per cent in Lille and Paris to 141 per cent and 154 per cent in Nantes and Strasbourg.

These statistics mean something to us who speak the language. Perhaps we can help others to comprehend their significance, in the light of the famine which today threatens many quarters of the globe. We, in the United States have promised 6 million tons of wheat to UNRRA for 1946; and had recently delivered about 3 per cent of that amount, while Canada had already delivered one-third of her quota. The State Department has recently estimated that for every million tons we fall short on our allotment, 20 million people will starve to death. The Food and Nutrition Section of our Association is deeply concerned with this problem. It urges in the strongest terms the importance of general participation in President Truman's program of voluntary rationing. If this fails to meet the need, a return to compulsory rationing would be clearly indicated.

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THE F. N. S. COMES OF AGE

IN May of this year, the Frontier Nursing Service, with headquarters at Wendover, Leslie County, Kentucky, celebrates its twenty-first birthday.

Mary Breckinridge, the impassioned and indomitable founder and head of this enterprise was of old Kentucky stock and she knew her mountains. She not only knew them, she determined to do something about them. In a region of nearly a thousand square miles, there were three little towns of 200–300 inhabitants. More than 28,000 of the total 29,000 population lived in lonely cabins and shacks scattered along the rivers and up the creeks and branches which cut through the deep canyons of the hills. There were only a few miles of paved road leading to the county seat. All other access was by rough horseback trails. The people (99 per cent "mountain whites") were desperately poor. There were no hospitals, practically no physicians available. It was the American backlands at their very worst.

Mrs. Breckinridge added an English qualification in midwifery to her nursing background. She studied what was being done abroad, particularly by the Highlands and Islands Medical and Nursing Service of Scotland under Sir Leslie Mackenzie. She formed her organization "to safeguard the lives and health of mothers and children by providing and preparing trained nurse-midwives for rural areas in Kentucky and elsewhere where there is inadequate medical service; to give nursing care to the sick of both sexes and all ages; to establish, own, maintain and operate hospitals, clinics, nursing centers, and midwifery training schools for graduate nurses; to educate the rural population in the laws of health, and parents in baby hygiene and child care; to provide expert social service; to obtain medical, dental, and surgical service for those who need them, at a price they can afford to pay; to ameliorate conditions inimical to health and growth and to conduct research toward that end." In May, 1925, she and two other devoted nurse-midwives moved in; and the news spread from Thousand Sticks Mountain

to Hell-for-Sartin Creek that there was something new in the framework of a society that had been untouched by the outside world for two centuries.

Today, the F. N. S. operates a hospital, with 18 beds and 8 bassinets, and three log houses at Hyden, six major nursing centers and five other small clinic centers in various parts of the area. It has in addition to Mrs. Breckinridge, a medical Director, a Dean of the School of Midwifery, and seventeen nurses, including supervisors and staff. It has a research director, a social service secretary and a statistician, besides clerical and accounting personnel and a large group of unpaid volunteers. In the first 20 years of its existence, the service registered 17,358 children and 10,039 adults. It delivered 5,963 babies. It administered 136,604 protective inoculations. It paid 363,432 visits to the home, and registered 434,662 visits to clinics. It gave 71,896 days of hospital care to 7,277 patients.[1]

The F. N. S. has three outstanding achievements to its credit. In the first place, it has demonstrated the extraordinary efficiency of the nurse-midwife in dealing with the problems of childbirth. Out of 6,263 deliveries up to January, 1946, there have been but 6 maternal deaths—a record which can be judged in the light of the fact that in similar regions the maternal mortality rate is nearer 10 than 1 per 1,000.

Second, this program has shown that—given sufficient courage and initiative—it is possible to bring the benefits of modern public health science to the most economically handicapped areas of the American continent.

Third, this gallant enterprise has given to all who know it at first hand, an inspiring lesson in the potential greatness of the human spirit. From Mrs. Breckinridge—who has conceived and planned the job and by her tireless efforts and moving eloquence raised the funds for its support—through the expert staff and down to the youngest volunteer—all have borne trials and overcome difficulties that in prospect seemed insurmountable. Riding the icy trails, swimming the swollen rivers, they have fulfilled their appointed tasks. One nurse died of an appendix ruptured in a wild ride and ignored while she continued her day's work to the end. Another nurse, and the Director herself, suffered horseback accidents which narrowly escaped fatal results. Ernest Poole closes a moving book on the achievements of the Service[2] with this passage: "Garibaldi long ago said to the men of Italy: 'What I have to offer you is fatigue, danger, struggle, with risk of death; the chill of the cold night in the free air, and heat under the burning sun; no lodgings, uncertain provisions, forced marches, dangerous outposts. Those who love humanity and their country may follow me!' The Frontier Nurses are like that."

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A NEW FORCE IN THE REFORM OF MENTAL HOSPITALS

THE readers of this *Journal* are in general aware that the status of our public mental hospitals is one of the least admirable aspects of our civilization. The Editor still vividly recalls his astonishment when a national authority in this field praised a certain institution of this type which was known to be overcrowded, undermanned, and operating on a per capita budget far below that of the jails and almshouses of the state. Yet the speaker was no doubt correct in comparing this particular hospital with those of the country as a whole.

The degree of personal understanding to which the mental patient is subjected is perhaps even more important than the quality of the food and the shelter with which he is supplied. As Dr. A. H. Eichert has said, "According to the usual set-up in a modern hospital, attendants are supposed to have the duty of carrying out the doctors' orders, with little of their own personalities entering into the situation. On the other hand, the contacts between the physicians and the patients are so short and few that it is the attendants rather than the physicians who interpret the hospital to the patients." Yet the attendants who occupy this crucial position are almost universally handicapped by low pay, absence of any special qualifications, and complete lack of training for their task.

Into this situation, aggravated by general wartime lack of personnel, there entered 2,000 conscientious objectors, young men of earnestness and, in many instances, of high intellectual and academic qualifications. In 57 institutions, they have fulfilled for four years the tasks of bed-pan carrying, feeding and washing of patients, changing of bed linen, with a faithfulness which alone made it possible to carry on with some degree of efficiency.

They provided, however, much more than performance of routine duties. They thought of what they were doing, they learned to understand it, they realized the fundamental inadequacies of the whole procedure. In 1944, they organized "The Mental Hygiene Program of Civilian Public Service" for the enlightenment of their own members, of the mental hospital attendant group as a whole, and of the general public, upon whose understanding the ultimate solution of this problem must depend. They have avoided all sensationalism, worked with and not against hospital administrators, proceeded slowly and scientifically toward the goal of better care of the insane.

They have a strong legal committee which is studying the legislation of all the states with respect to mental disease and preparing the draft of a model mental hygiene law. They have issued excellent pamphlets describing the work of the mental hospital attendant which can serve as elementary textbooks in the field. They are attempting to acquaint the public with the real objectives and problems of the mental institution by describing in popular form the work of certain selected hospitals.

Since 1944, they have published a monthly journal *The Attendant*—a name now changed to "The Psychiatric Aid." [1] The following titles of articles appearing in recent issues give some conception of its scope: Training Programs for Low-Grade Defectives; A Symposium on Institutional Architecture; A Subjective Account of Electroshock Treatment (by a patient); A Symposium on the Supervision of Patient Crews; and many expositions of the principles of mental hygiene which the attendant should follow in dealing with the patient.

This may well be the dawn of a new day in the management of mental hospitals. Benjamin Rush was a physician, Dorothea Dix, a reformer, Clifford Beers, a patient. Now, for the first time a group of intelligent young men have seen this problem from the inside, have lived and suffered with the patients, as no doctor and no outside reformer can hope to do. They have let light into one of the dark places of the earth. Clifford Beers would have rejoiced in this episode; and it is good that his National Committee for Mental Hygiene stands behind these young men in their important work.

REFERENCE

1. To be obtained from Phil Steer, P. O. Box 7574, Philadelphia 4, Pa.

BOOKS AND REPORTS

Books of Special Interest to Public Health Workers Published in 1944 and 1945

"For out of old feldes, as men seith
Cometh all this newe corn fro yeer to yere
And out of old bokes, in good feith
Cometh al this newe science that men lere."— Geoffrey Chaucer

THE two years since the JOURNAL's latest book review edition have been full of ferment in many areas, in public health no less than in others. They have, for example, seen great forward steps in adminsitrative planning, such as the Association's Medical Care Statement and the President's Health Message, the introduction of important federal legislation, such as Senate Bill 191 for the construction of hospitals and health centers, the comprehensive review of voluntary agencies, development of the National Health Reporting Area, and the planning for a nationwide system of local administrative units of economy and efficiency. They have also seen the end of a war in which deaths due to war wounds were amazingly low because of the efficacy of blood plasma, the sulfa drugs, and penicillin, none of which were available during the last World War. Because of this and because of the vast scope of the war itself, the physical and mental rehabilitation of war veterans will increasingly concern the professions.

With the end of the war in mid-1945, renewal of scientific and medical communication with the rest of the world began. Not too much of this communication has yet been reflected in books received, but there is no doubt that the war-torn areas have in the future much to report by way of relevant experience, if only they can be kept alive for the better days when the international exchange of scientific information is again a part of normal communication.

It is obvious that any selection of books for special mention by any individual or group will, in the words of the Book of Common Prayer, do "those things that ought not to have been done, and leave undone those things that ought to have been done," in the opinion of any other individual or group. This is as true of the present selection as of any other; it is our hope only that the list is both catholic and discriminating; that it does not include unworthy books. It has been selected on the basis of reviewers whose competence has been proved and reflects their opinions rather than those of the authors. Selections have been made from reviews appearing in the 1945 volumes of the *American Journal of Public Health, Journal of the American Medical Association, Canadian Medical Association Journal, British Medical Journal, Lancet, Journal of the Royal Sanitary Institute,* and *Canadian Journal of Public Health.* Hence, among the selections are books that were published in 1944, as well as in 1945. It should also be noted that the absence of a title is without prejudice. We should be more than human if all that were good had come to our notice and were recognized in their exact place on the scale of excellence.

BIOGRAPHY AND HISTORY

Essays in the History of Medicine

Presented to Professor Arturo Castiglioni on the Occasion of His Seventieth Birthday has 25 contributors who, spurred on by their affection for the one honored, wrote quite important essays which they might not otherwise have done. The variety of historical subjects is itself tribute to Dr. Castiglioni's own *Comprehensive History of Medicine*, written in Italian and translated in 4 other languages. Included in the "Festscrift" volume are essays from 7 countries written in 5 languages —the history of colonial hospitals in Spanish America; diabetic diets in the pre-insulin era; medical matters in Marco Polo's book of travels; and Ozanam, the epidemiologist, among others. "This is medical humanism at its best and our modern medical world gains richly from such an alliance of science and letters."

Another volume of "esoterica" is *The Falling Sickness: A History of Epilepsy* from the Greeks to the beginning of Modern Neurology, by Oswei Timken. It is "not merely for the epileptologist but for all physicians and indeed all educated people who wish to increase the depth and the perspective of their knowledge and their sympathies." The author has combed the literature of the ancient and medieval world, sought the opinion not only of noted physicians and university professors, but of village practitioners—even charlatans, of churchmen, and the common man. The result is both a panorama of seizures and a view of the painful progress of medicine—clear, readable, and at times amusing. It has no historical rival and occupies a separate shelf in the reviewer's Library of Fame.

A historical volume of peculiar interest is *Galen on Medical Experience*, the first edition of the Arabic version with English translation and notes by R. Walzer. This restores to the world one of the earliest of Galen's works, the original text of which has been lost. It makes available one of the best of Galen's treatises and adds greatly to our knowledge of the ancient empirical school of medicine. This book will delight students of medical history, as well as those interested in philosophy and the late Greek writers, and is an easy passport to Galen's mind. *American Medical Practices in the Perspective of a Century*, by Bernhard J. Stern, on the other hand, proclaims its modernity with its sponsorship by a Committee on Medicine and the Changing Order of the New York Academy of Medicine. Inspired by necessary adjustments in the provision of medical care required by "a new medical science called upon to serve a new type of society," it is informative, accurate, and short. The series of which it is a part should exert a great influence in molding public opinion and in educating physicians.

With both antiquarian and current interest, Erwin H. Acherknecht's *Malaria in the Upper Mississippi Valley 1760–1900* is a supplement to the *Johns Hopkins Bulletin of the History of Medicine*. It should prove useful in work with or further study of malaria problems. For the general health worker or the casual reader it gives a vivid and authentic picture of the scourge of malaria during colonization of this area. Primarily factual, it is extremely interesting and informative for him who reads it carefully.

The year brought biographies of two notable pioneers. *A Biography of Julius Tandler*, by Alfred Goetzl and Ralph Arthur Reynolds, reviews the career of a pioneer in public health. As City Welfare Councillor of Vienna after the first World War, Tandler was responsible for the sound and brilliant developments of public health in the Austrian capital. He believed that every individual has a right to health and that the physician should occupy

a position in the social structure similar to that of the judge, teacher, or priest who are supported by society as a whole. Those were fighting words a generation ago. Rachel Baker's story of Elizabeth Blackwell, *The First Woman Doctor,* epitomizes the 100 year history of American women in medicine at the end of which "the contributions and even the indispensability of women in some fields of medical science are unquestioned." This is the simply told narrative of the woman who, as a little girl, decided she would "be something hard" when she grew up.

Two volumes of scientific history have also been high among the years' offerings. *The Autobiography of Science,* edited by Forest Ray Moulton and Justus J. Schifferes, "presents the highlights of scientific progress from the dawn of history to the present," through specific passages from the scientist's writings selected by the editors —"excerpts that are not mere fragments, but well written papers." For those interested in public health there are "two excerpts from anonymous Egyptian physicians, four from Hippocrates, and continuing with highlights in medicine, chemistry, and public health to the present time." Described as a "mental feast" to "be enjoyed by every intelligent layman." Also George Baitsell edited the 4th series of *Science in Progress,* a Scientific Book Club selection. This is a series of reports made by the investigators themselves—not easy reading but full of interesting new approaches and findings. Specially recommended are K. C. D. Hickman's chapter on vitamins for its understanding and as a masterpiece in the use of the King's English, Walter R. Miles's Psychological Aspects of Military Medicine, and the excellent illustrations of Detlev W. Bronk's Structure and Action of Nerve Cells.

Two other books should be mentioned in this category. *The Doctor's Job,* by Carl Binger, the reviewer reports, "is something different" for Dr. Binger "writes about medicine in the tradition of great physicians from Hippocrates to Osler." He helps both physician and patient to understand what the doctor's job is and how he gets it done. There is also *One Hundred Years of American Psychiatry,* the Centennial volume of the American Psychiatric Association. "Now everything about psychiatry in the United States and Europe during the last one hundred years is a matter of record—in a splendidly conceived and beautifully executed, readable historical document."

ENGINEERING AND ENVIRONMENTAL SANITATION

Drawing largely upon the studies carried out at the Cincinnati Station of the U. S. Public Health Service, Earle B. Phelps has written a book of timely interest in *Stream Sanitation.* He discusses in successive chapters the life history of a stream, the biology of growth and decay, the aerobic and anaerobic decomposition of sewage, the oxygen balance in polluted streams, and the public health aspects of bacterial pollution. His volume brings together in readable form a large amount of basic information otherwise available only from manifold published sources. A chapter on stream microbiology by the Senior Biologist of the Cincinnati Station, James B. Lackey, is included.

The second edition of *Mosquito Control—Practical Methods for Abatement of Disease Vectors and Pests,* by William B. Herms and Harold F. Gray, and published by the Commonwealth Fund, is an essential book for expert or novice in mosquito control work. The first edition, a comprehensive and practical handbook for public health and mosquito abatement officials, has

been revised and enlarged to include the new techniques of mosquito control which were rapidly developed during the war years.

"The recognition that in medicine as well as in politics and commerce, human relationships have expanded from the international into the global concept" is furnished by *Global Epidemiology*. The subtitle which the authors, Simmons, Whayne, Anderson, and Horack have given it, "*A Geography of Disease and Sanitation,*" is more descriptive. This book started in the Medical Intelligence Division of the U. S. Army with the purpose of gathering information of value in planning the health protection and medical care of troops in whatever areas of the world stationed. Later the National Research Council proposed that the original surveys be published. It is an accomplishment worthy of praise to have brought together in orderly presentation this wealth of useful information gathered from diverse sources, many of which are not ordinarily accessible.

HEALTH EDUCATION

The Health Instruction Yearbook, edited by Oliver E. Byrd, succeeded well indeed in keeping "abreast of the rapidly changing developments and problems in public health, medicine and allied areas." It is not a manual of health education but "offers content and implementation for health instruction digested from current articles in public health and scientific journals." It is intended for public health educators, school health educators, nurses, students, and interested laymen.

Two reports from the Illinois Joint Committee on School Health, *A Basic Plan for Health Education and the School Health Program* and *A Basic Plan for Student Health and Health Education in Teacher Training Institutions*, illustrate the results of coöperative labors such as have gone on in a number of states among workers in the fields of education, medicine and public health, and volunteer services. The Joint Committee represented 29 agencies. Approximately 100 persons served on the committees that prepared the different parts of these reports. "This wide participation is significant and should bring rich dividends in interest and leadership."

HOUSING

An Appraisal Method for Measuring the Quality of Housing, by the Committee on the Hygiene of Housing of the Association, makes available a new technique for inspecting and evaluating the health qualities of housing which is simple, objective, and susceptible to wide application. It is one of the major contributions to translating opinions into objective measurement in a most difficult field of appraisal. Every health officer should have it and should introduce it to his coworkers everywhere so that all agencies, public and private, should have the same units of measurement in their common purpose of eliminating slums, blighted areas, and substandard dwellings.

INDUSTRIAL HYGIENE

A fine book of special interest to many workers in public health is *Lead Poisoning*, by Abraham Cantarow and Max Trumper. The authors have brought together and coördinated the available data on this subject in a logical presentation and fine correlation of the material. There are a bibliography, index, and good cross-references. The volume is highly recommended to all those interested in occupational disease and industrial medicine. On the psychological side of industrial hygiene, May Smith's readable and well rounded *The Handbook of Industrial Psychology* "may well be considered required reading for the man who wants

to do more than issue orders." She boils down in small scope the entire panorama of problems besetting "those who are in some way responsible for others, or who have to get on with others." "There is not a line in her work, obviously the distillation of long research, which does not hew to the line of the common denominator, and which does not live up to its title, Handbook."

The Industrial Hygiene Section of the Association, through a Subcommittee on Chemical Methods, is responsible for the 41 page pamphlet *Methods for Determining Lead in Air and in Biological Materials*. Written by Professor J. Cholak, it reflects the vast experience that the Kettering Laboratory of the University of Cincinnati has had in the estimation of lead when present in minute quantities. This booklet is a valuable addition to the industrial hygienist's library. The bibliography is sufficiently complete so that additional details on any of the analytical methods can be obtained by those who are interested.

MEDICAL CARE

Late in 1944 the American Public Health Association adopted its official statement, Medical Care in a National Health Program (*A.J.P.H.* 34:12. (Dec.), 1944) which was hardly less forward looking and trailblazing than the President's Health Message a year later. Germane to this new impetus for a national medical care program is the Farm Foundation's *Medical Care and Health Services for Rural People*, which is a Report of the National Rural Health Conference in April, 1944. Record of a "milestone conference," this is an informal source book on virtually every aspect of the problem for those interested in equal health opportunity for our 57 million rural citizens. Rural shortages of doctors and hospitals are described vividly by those who have experienced them. An active committee of farm organizations on rural health came out of this conference with a first goal of parity in health services with urban people.

The philosophy of medical care programs is discussed in Franz Goldmann's *Public Medical Care*. Dealing with public medical care as a social movement, it is a "masterful marshalling of material and highly stimulating." It should be interesting to all medical students and practising physicians, and is highly recommended to public health officers, hospital administrators and trustees and students of social security legislation.

MENTAL HYGIENE

Some of the volumes in this field are discussed under History or under Medicine in War Time. Among others Stanley Cobb's *Borderlands of Psychiatry* explores a marginal area that has been despised and disputed territory. This borderland includes about 6,000,000 alcoholics, stammerers, epileptics, psychoneurotics, and others with neurological disorders. With his scientific approach, Dr. Cobb provides a clearer understanding about the millions dwelling in this border region. This book should be invaluable for those public health workers who wish to understand the people they serve. The reviewer slyly says "they will find it helpful even in understanding themselves."

Understanding emotional difficulties through a knowledge of their developmental components is the central theme of *Emotional Hygiene*, by Camilla M. Anderson. It is written in clear, simple language, enriched by illustrations from real life and lightened by appropriate veins of humor. It bears the stamp of a reverent and intellectually honest attitude toward those embarrassingly intimate mysteries of early personality development from which

later spring most of the inadequate emotional adjustments to life. To get the understanding contained in this volume into the popular thought stream becomes an important duty of public health workers.

MICROBIOLOGY

The third edition of Martin Frobisher's *Fundamentals of Bacteriology* was published in 1944 in an edition of 824 pages and 398 illustrations. It has been reorganized completely and has newly added material on penicillin, viruses, sulfonamide drugs, among others. Each chapter has a bibliography of recent material which not only covers the details of the text but should stimulate much wider reading. Both Dr. Frobisher and the publisher are to be congratulated on this "well groomed" textbook.

The Etiology, Diagnosis, and Treatment of Amebiasis, by Charles Franklin Craig, is timely because of the increased importance of amebiasis during and after the war. No one is better qualified than Colonel Craig to write on this subject. His book, well illustrated with photographs and line drawings, is in excellent format.

In *The Bacterial Cell,* René J. Dubos of the Harvard Medical School, reviews investigations in all relevant fields directed at the nature of the bacterial cell itself. His greatest contribution to the rapidly expanding field of bacteriology is a dynamic and analytic approach, outstanding examples of which are his chapters on staining properties and his discussion of virulence. This monograph is of peculiar value to investigators and students of bacteriology.

Sylvester Gould's *Trichinosis* is the first good monograph on trichinosis since that of Stäubli in German in 1909, and should be of value as a reference book. The excellence of the work leaves little opportunity for criticism. An extensive bibliography covering the work of other authors during the period from 1822 to 1943 is included, as well as 128 excellently reproduced illustrations. The increased interest in the public health aspects of trichinosis makes this a timely volume.

Virus as Organism, by Frank McFarlene Burnet, is highly recommended reading. Here in Harvard University's *Monograph No. 8* of the Dunham Lectures for the promotion of medical science, a visitor from Australia has written a provocative book. He seeks to concentrate attention upon the broad concepts of epidemic disease in terms of the agent involved rather than in minutiae which at present are difficult to interpret. "As far as the doctor, the public health administrator and the biological experimenter are concerned, the pragmatic necessity will remain that virus be regarded as organism—self-reproaching, varying, and surviving like any other living being"—i.e., rather than as an inanimate, crystalline substance.

Of the second edition of Fred Wilbur Tanner's *The Microbiology of Foods,* Friend Lee Mickle says: "The public health official or student cannot afford to be without this exhaustive source of reference material on foods." The earlier book has been completely rewritten in painstaking and critical manner and expanded to include a wealth of material from the modern literature. Professor Tanner has fully accomplished his intention that this be a source book to the literature on foods as well as to methods of analysis. The material is well documented and well indexed in a volume attractively printed in readable type on good paper.

PENICILLIN AND OTHER ANTIBIOTICS

A noteworthy accomplishment of the war effort in relation to medicine has been the development of antibiotic therapy. This development is reflected

in a number of books that are valuable in crystallizing what is currently known about antibiotics even though that knowledge may soon be superseded by the findings of further researches. Among the books published in 1945 are Selman A. Waksman's *Microbial Antagonisms and Antibiotic Substances*, an authoritative and comprehensive survey of the subject developed historically and from the viewpoint of a soil microbiologist. He reviews the antagonistic activities of microörganisms with emphasis on their occurrence in nature and their relation to human, animal, and plant diseases, and discusses the chemistry and action of the known antibiotics and their application to the control of disease. The text is scholarly and unusually well documented. A bibliography of 1,016 references is appended. An excellent summary of available knowledge on the use of penicillin and other antibiotics in the treatment of human disease is included in John A. Kolmer's *Penicillin Therapy, Including Tyrothricin and Other Antibiotic Therapy*. It contains a good bibliography of original publications on the theoretical and practical aspects. It is a timely attempt to correlate the current information on penicillin and other antibiotic agents for the medical and dental professions. In a similar category is Wallace E. Herrell's *Penicillin and Other Antibiotic Agents*. In this the author has endeavored, in a concise and lucid text, to summarize the extensive fundamental and clinical studies in antibiotic agents. He divides his book into two parts—a historical survey and the clinical use of penicillin. Each chapter concludes with key references to the literature.

PUBLIC HEALTH ADMINISTRATION

The year has seen three significant volumes in public health administration. Together they form a complete trilogy for the administrator. Perhaps the most important is Haven Emerson's *Local Health Units for the Nation*, which blueprints local health administration for the post-war years. Published by the Commonwealth Fund, which also provided the funds for the study, it is the result of a two year exploration by a subcommittee of the Association into the existing local public health framework and the organizational changes necessary to fit it into a proper vehicle for giving every person in every county of every state at least the basic minimum health protective services he has a right to expect from his local officers of government. The volume suggests that fewer than 1,200 health departments are needed if only the county instead of the town, township, or village, were the recognized administrative unit, if city and county joined in providing service for the entire county, and if thinly populated counties were to join with their neighbors to form a health district serving at least 50,000 persons. More full-time medically trained health officers, more public health nurses, greater professional leadership in public health engineering, dental and health education programs, better planning for laboratory service—all are needed and can be had on at least a minimum basis for one dollar per capita. The third edition of *Health Practice Indices*, by the Committee on Administrative Practice, presents the best yardstick yet devised for measuring the quality of performance of existing health departments. The third volume, Harry S. Mustard's *Government in Public Health*, is both historical and philosophic, and puts into proper perspective the thinking about the relation of government on various levels to the public health of the future. "One could hardly ask," says the reviewer, "for a more informative and thought provoking account of this increasingly important aspect of modern medicine."

PUBLIC HEALTH AND WAR

Whereas during the early years of the war, books in this classification were devoted largely to preparedness for war eventualities, the later ones that might be classified under this title either sum up the scientific advances made during the war or deal with problems of rehabilitation. Of the first type, the American Philosophical Society in 1944 published a *Symposium on Wartime Advances in Medicine*. In compact form this is an account of important medical advances made during the war. Competent authors cover the subjects of water requirements of castaways, blood derivatives and substitutes, penicillin treatment, advances in the treatment of wounds, immunization in wartime, human problems in military aviation, neuropsychiatry, and trends in the control of infectious diseases. This, with W. H. Taliaferro's *Medicine and the War* in 1944, and Morris Fishbein's *Doctors at War* in 1945, brings up to date, except for the post-war backward look, the interaction of war and medicine that was extensively explored in the 1942 symposium, *War Medicine*, edited by Winfield Scott Pugh.

Men Under Stress, by Roy Grinker and John Spiegel, is an "exceptionally well written book on the psychoneuroses precipitated by the stress of military life and aerial combat." "The style and terminology are such that the intelligent layman as well as the physician should be able to read and enjoy one of the most significant books to come out of the war." In *Psychiatry in Modern Warfare*, Edward A. Strecker and Kenneth E. Appel "have condensed a vast fund of information into a well documented and well written book." The nature of warfare in the two world wars is contrasted, and their potentialities as a cause of emotional disturbance, both among civilians and the armed forces. Half of the book is given over to Demobilization and the Return to Civilian Life. This describes "the change in attitude, orientation, and behavior demanded of the military man when he returns home." There is an extensive and valuable bibliography. On a similar subject, George K. Pratt, Psychiatric Examiner at Induction Centers of the U. S. Armed Forces, in *Soldier to Civilian—Problems of Readjustment*, places primary emphasis "on a realistic recognition that a few neat packages of rules for dealing with the returned service man cannot be presented." What is good advice for one person may be the worst possible advice for another. There is also a valuable appendix on Community Services for Veterans.

PUBLIC HEALTH NURSING

In this field *Techniques of Supervision in Public Health Nursing*, by Ruth B. Freeman, published in 1944, is perhaps the most important. Her presentation of the philosophy and broad general principles of supervision and its tools is rooted in experience and is penetrating and comprehensive—altogether a masterly job which deserves recognition in wide and immediate use. Not so directly related to public health nursing but important, nevertheless, is Edith M. Stern's *The Attendant's Guide*, written in collaboration with Mary E. Corcoran and published by the wide-ranging Commonwealth Fund. It supplies, simply and clearly, information about the duties, attitudes, and knowledge expected of an attendant in a mental hospital. It should be read by student and graduate nurses entering the mental hospital for the first time because the knowledge about the behavior of the mentally ill and the conditions surrounding their care will make them better nurses.

TEXTBOOKS AND NEW EDITIONS

A number of standard works have been published in new editions, making

available the newer knowledge on the respective subjects. One of the most important, from the standpoint of the breadth of its influence at least, is the sixth edition of the Association's *The Control of Communicable Diseases.* This has literally gone around the globe with official imprints of 19 states, agencies and foreign countries, and in several languages, including Siamese. No public health worker should be without it. Another old friend is *Stitt's Diagnosis, Prevention and Treatment of Tropical Diseases,* edited in a seventh edition of two volumes by Richard P. Strong. "If," says the reviewer, "what is here so admirably presented were put to its logical and complete use by each physician as diagnostician and therapeutist and by the medical officers of civil and military authority, the face of the world would be immeasurably brightened from pole to pole." (This in spite of a number of proofreading errors also mentioned.) "Balance, sense of proportion, freedom from extreme or eccentric attitudes, fairness in presenting conflicting or opposite opinions, and data still disputed on matters of etiology, treatment, and epidemiology, characterize the text throughout."

Still another seventh edition is Asa C. Chandler's *Introduction to Parasitology, With Special Reference to the Parasites of Man.* Written primarily for college students, it is so complete and up-to-date, that the medical and public health professions will find it of great value. Although the life cycle, anatomy, treatment, and prevention of parasitic forms are detailed, the broader problems of parasitic existence and general human implications of parasitic diseases are developed from Dr. Chandler's broad biological experience. The style is stimulating and readable.

Public health administrators who are finding it difficult to orient dental health within the field of public health should find enlightenment in the third edition of *Bacterial Infection With Special Reference to Dental Practice,* by J. L. T. Appleton. "In the field of infection as in no other department of pathology or practice, medicine and dentistry meet on common ground." This book belongs on dental shelves also, for it offers the dentist a working guide in the field of infection.

There is also the second edition of the Association's *Diagnostic Procedures and Reagents: Technics for the Laboratory Diagnosis and Control of Communicable Diseases.* This has grown from a slender manual of microbiological laboratory science as applied to epidemiology to a mature and indispensable guide and reference book. Each of the sections is the well balanced and diligent work of highly qualified specialists whose basic scientific and technical knowledge is fully reflected in the treatment of the subject, and the references are critically selected.

Manual of Tropical Medicine, by Thomas T. Mackie, George W. Hunter, and C. Brooke Worth, was produced with the collaboration of the Army Medical School. It provides in an excellent manner a concise statement of the most recent available and authoritative information on tropical diseases. Its wide scope, clear exposition, and excellent illustrations place it in the forefront of the one-volume texts in this field.

Also in this category might be mentioned two year books for their usefulness as sources of varied information not easily obtainable elsewhere. The first is the *Municipal Year Book,* subtitled The Authoritative Résumé of Activities and Statistical Data of American Cities, and prepared annually by the International City Managers' Association. The 1945 authors are Clarence E. Ridley and Orin F. Nolting. Its intent is to supply "municipal officials with discussions of the current problems of cities, facts, and statistics

on city activities, and analyses of trends by population groups." Its annual public health summary brings together much interesting material on municipal public health matters, the 1945 data having featured city-county health units in the various states. The other is the *Social Work Year Book*, prepared annually by the Russell Sage Foundation under the editorship of Russell H. Kurtz and an advisory committee broadly representative of the various phases of health and welfare. The 1945 edition includes 75 topical articles discussed both historically and currently by 74 authors. Among the topics of most immediate interest to public health workers are Housing and City Planning, Maternal and Child Health, Medical Care, Mental Hygiene, Public Health, Public Health Nursing, Social and Health Work in the Schools, Social Hygiene, Social Insurance, and Tuberculosis. The directory, including a thumb-nail sketch of national agencies—70 governmental and 402 voluntary—is also invaluable reference material.

TUBERCULOSIS

For tuberculosis workers, Dr. Max Pinner's *Pulmonary Tuberculosis in the Adult* is a "must" book. Among its special delights are extensive quotation from European literature; a critical attitude toward many conclusions and dogmas; a bibliography with extensive chapter references, a succinct statement of the author's main theme and often an evaluation of the work. He succeeds in his purpose "to create understanding, to form rational and consistent attitudes and approaches to the problem as a whole, to provide the basically necessary foundations on which the practical work should proceed." Ruth Puffer's *Family Susceptibility to Tuberculosis* is important in that it directs the attention of the health officer to a group often overlooked in case finding, namely, siblings of the active tuberculosis sufferer, whether or not they live in the same household. *Mass Radiography of the Chest*, by Herman E. Hilleboe and Russell H. Morgan, covers all phases of mass x-ray surveys from the preliminary planning to the study and care of persons found to have x-ray evidence of pulmonary disease. The book should serve as an excellent reference source for public health workers.

The National Tuberculosis Association has continued its volumes on *Tuberculosis in the United States: Graphic Presentation*. In 1944 Volume 2 appeared "to provide a base-line for the study of changes in tuberculosis mortality by means of proportionate mortality," using the same basic material as the 1943 volume on mortality statistics in states and geographic divisions by age, sex and race. In 1945, Volume 3 presented the mortality statistics for large cities in the same detail. These studies are a practical contribution in the daily fight against the disease.

VITAL STATISTICS

Manual of Coding Causes of Illness According to a Diagnosis Code for Tabulating Morbidity Statistics, by the U. S. Public Health Service and the Bureau of the Census, "is the most important step so far made in our country towards responsible uniform comparable morbidity data." It will increase the "distinction and influence of the United States" at the next International Conference on Certified Causes of Death and Diseases to be held in 1948. It is "in as nearly perfect technical and textual form as possible, what all hopeful devotees of systematic morbidity reporting have awaited these many years." From the well known English statistician, R. A. Fisher, comes the standard classic for biological statistics, *Statistical Methods for Research*

Workers. Its simplified presentation is valuable not only to laboratory workers, but also to clinicians who would draw conclusions from any series of cases.

Another valuable reference book is *Handbook of Statistical Reference Data By District and Health Area 1931–1940,* compiled by Marjorie T. Bellows, Godias J. Drolet, and Harry Goode, and published by Neighborhood Health Development of New York. Although these are localized data (pertaining to New York City only), the volume gives health workers everywhere a clue to the kind of facts they must work with if they want to go about the task of improving community health intelligently and want to know whether they are getting results. Accurate diagnosis of health problems and application of correct remedies are based upon such data as are shown in this handbook.

VOLUNTARY HEALTH AGENCIES

The year 1945 produced two notable books dealing both historically and philosophically with voluntary agencies. The first to be published, Harold M. Cavins' *National Health Agencies,* extracts from dusty records and from the memories of the few who remain, with conciseness, vividness, and the human touch, the significant events in the origins of 10 national health and four professional voluntary health organizations. Included are thumb-nail sketches of 82 national agencies interested, though not always exclusively in health. The second is one of the books that once in a generation start a movement that eventually radically changes the social architecture. *Voluntary Health Agencies,* by Selskar M. Gunn and Philip S. Platt, is the result of a three year study made under the auspices of the National Health Council under grants from the Rockefeller Foundation. It takes apart the national health agencies and their 20,000 local counterparts and suggests how their mechanisms could be integrated and coördinated to avoid the present results in many instances in "conflict between agencies, confusion of the public, an unbalanced community program and a deplorable lag in meeting emergent needs." It recommends the strengthening of the National Health Council for strategic planning among the national agencies, and on the local level, "one centralized, unified, voluntary health agency with one board and one executive, with special committees and staffs to direct the work of special divisions—tuberculosis, visiting nursing, mental hygiene, safety, etc."

Pulmonary Tuberculosis—*By R. Y. Keers, M.D., and B.G. Rigden. Baltimore: Williams & Wilkins,* 1945. 273 pp. illus. Price, $5.00.

The authors have drawn on their experiences as medical staff members in English sanatoria to prepare this handbook for students and practitioners, and have brought together a very good clinical presentation of pulmonary tuberculosis. While the book is designed for the student and the general practitioner, it would also serve very well as a guide to the sanatorium physician.

English practice in the field of pulmonary tuberculosis as portrayed in this book is not strikingly different from American procedure.

The classification of tuberculosis used divides pulmonary tuberculosis as:

1. Primary Tuberculosis.
2. Post Primary Tuberculosis.
   a. Haematogenous Dissemination.
   b. Isolated Pulmonary Tuberculosis.

Reinfection, which term Americans would apply to Post Primary Tuberculosis, is a term the authors reserve for exogenous reinfection only and use

endogenous exacerbation to apply to lesions developing from endogenous sources rather than saying endogenous reinfection.

A short chapter at the end of the book on "Tuberculosis as a National Problem" seems all too brief. It would seem to have been highly desirable to bring the public health aspects of tuberculosis into the book earlier and more extensively as they relate to epidemiology and other phases of pulmonary tuberculosis so that the student and the practitioner might continuously have the public health and preventive viewpoint before them.

The American sanatorium physician will find the outline of sanatorium care of patients of definite interest.

BRUCE H. DOUGLAS

Men Without Guns—*By DeWitt MacKenzie. Captions by Major Clarence Worden. Foreword by Major General Norman T. Kirk. Philadelphia: Blakiston,* 1945. Text 47 pp., 137 illus. Price, $5.00.

No more valiant contribution was made to victory in World War II than that of the men without guns, the officers and enlisted men of the Medical Department of the United States Army. This book is a literary and pictorial review of some of the most noteworthy of their achievements. It consists of 47 large pages of descriptive matter, divided into 8 sections, concerned with the medical corpsman; the doctor; actions in the Southwest Pacific, Saipan, Italy, Normandy, and the Burma Road; and rehabilitation of the wounded. This is followed by 137 paintings by a dozen artists, a collection sponsored by Abbott Laboratories. For each of these Major Worden has written exciting descriptive captions. The book, which is very well printed, is a fascinating review of the dangerous, heroic work of the medical officer and soldier. It should be of interest not only to medical veterans of the World War, but to doctors, nurses, and veterans generally.

JAMES A. TOBEY

Hidden Hunger—*By Icie G. Macy, Ph.D. and Harold H. Williams, Ph.D. Lancaster: Jaques Cattell Press,* 1945. 286 pp. Price, $3.00.

In spite of its sensational title and subtitle, this book is an accurate, semi-scientific presentation of a vast fund of information condensed into one volume.

The text differs from most books on nutrition in that it covers a much greater variety of topics than the majority of books of this kind. The wide range of subjects covered has necessarily precluded as thorough a treatment of many topics as might be desirable. Further, the frequent and lengthy quotations in fine print detract from the continuity of the central theme and effectivity of the book. However, it does bring into a single volume a diversity of information, which will be of value to those who are interested in the broad aspects of the field of nutrition.

The authors introduce a novel approach to the presentation of this kind of material by including accounts of the origin of this science, the founding of the different professional organizations, and scientific journals and the publication of some of the earliest texts concerned with nutrition.

The nutrients known to be essential for normal nutrition are considered, as is the malnutrition resulting from diets inadequate in these food constituents. The relationship of a variety of sciences, as bio-chemistry, physiology, medicine, etc., to nutrition is pointed out and the progress already made toward alleviating nutritional deficiencies is described.

Considerable space is devoted to the selection of foods and their uses; food habits, facts and fashions; fortification and enrichment; food preparation, preservation and processing; and food production, supply, and consumption. The

feeding practices of the Armed Services and industrial workers during World War II are discussed, as are the recommendations for adequate nutrition established by the White House Conference in 1930, the League of Nations, the 1941 National Nutrition Conference, and the Conference of the United Nations on Food and Agriculture. Some of the recent advances which should aid in promoting improved nutrition in the peoples of the future are described. The text is generously documented with references which add to the usefulness of the book for the general student.

ELSA ORENT KEILES

Annual Report of the Federal Security Agency. Section 4—U. S. Public Health Service—*Washington: Government Printing Office*, 1945. 156 pp. Price, $.30.

The U. S. Public Health Service, as everyone knows, has moved into new ground in the last decade, but it will surprise even the well informed to read this report and to appreciate its inclusiveness. The Surgeon General reports that during the war the nation's health did not lose ground but he maintains that "such passive maintenance of present health standards is not enough. In the peaceful years ahead, we must take up aggressively the task of improving the people's health."

Dr. Parran expects that during the reconversion period problems comparable in scope and extent with those of the war may be expected to arise. Among the recommendations of this report special emphasis is laid on building up all public health services with well trained personnel for every community in every part of the country; the addition of cancer control programs and dental care to traditional public health services; the establishment of mental health programs at the community level; the inclusion of bedside care as a part of the visiting services of all public health nursing programs; and the continuation by states and communities of the environmental sanitation work which has been carried on during the war through federal appropriations. "It is now time," says Dr. Parran, "to set our sights for the broad objective—the attainment of complete health and medical service, of high quality, in all parts of the country. We must move forward rapidly toward this goal—doing more of what we have been doing and doing it better; shaking the dust out of our traditions; accepting the new . . ."

It is a wholesome experience to read this story of a dynamic service, and the experience should cancel out fears subtly planted that an expansion of the responsibilities of the Public Health Service is something to be dreaded.

REGINALD M. ATWATER

Textbook of Obstetrics—*By Henricus J. Stander, M.D. (3rd ed. rev.) New York: Appleton-Century*, 1945. 1287 pp. 973 illus. Price, $10.00.

This handsome textbook represents the 9th edition of *William's Obstetrics*. Although this is Stander's third revision, it is the first time that the title page of William's has been changed to indicate the real author. Now it is as it should be, for the text is the obstetrics taught at Cornell where Stander is Professor of Obstetrics and Gynecology. The general plan of the book is new, with substitution of section and page headings for the traditional chapters.

Discussion of abnormal pelves and puerperal infection is unusally complete. Toxemia of pregnancy is well covered, but of course there is nothing new, except that "low reserve kidney" is just mentioned.

Stander has not been swayed by Watson's recent indictment of the Voorhees bag, nor impressed by Irving's experience in the management of abruptio placentae.

Cesarean section is thoroughly dis-

cussed. Cyclopropane and ethylene for anesthesia are preferred over local infiltration, and the safety of spinal anesthesia is said to be dubious. It is the practice at Cornell to sterilize the patient at the third cesarean section, though it appears that, at earlier operations, the patient's wish is of great importance.

Stander's book is excellent for students of obstetrics, whether undergraduates or specialists. It is highly recommended.

CHARLES A. GORDON

The **Psychology of Seeing**—*By Herman F. Brandt, Ph.D. New York: Philosophical Library,* 1945. 240 pp. Illus. Price, $3.75.

The experimental findings in ocular photography of the Visual Research Laboratories, Drake University, Des Moines, Iowa, are reported in detail by the author, Professor of Applied Psychology and Director of the Laboratories. By means of a new bidimensional camera the eye movements of a subject are objectively recorded as dots (fixation points) on motion picture film which is subsequently projected on a field equivalent to the pages originally observed. An eye pattern, indicating the duration, location, and sequence of every fixation, as well as the distance, direction, and frequency of every excursion or eye movement, is thus established. A large body of repeated, controlled experiments on thousands of subjects has resulted in new evidence for the interpretation and evaluation of visual perception and of the working of the human mind.

More than half of the book is devoted to the application of these findings to the fields of advertising, learning, and art. The treatment, while interesting and suggestive, does not impress the reviewer as sufficiently convincing, despite the statistical techniques employed.

The chapter on "Projected Studies and Their Applications" suggests the possibilities of ocular photography in measuring visual acuity, illumination effects, crime detection, personality, intoxication, aptitude, and efficiency. In spite of his enthusiastic belief in ocular photography as a scientific method of studying the human mind and its behavior the author asks acceptance only of such postulates as can be verified by painstaking research.

It is regrettable that the attention of the reader is so constantly distracted by the faulty typography and that so many of the 88 illustrations are wretchedly reproduced. The glossary and index are excellent.

PHILIP S. PLATT

Guide for Parents of a Preschool Blind Child—*By Gertrude Van den Broek. New York: State Department of Social Welfare, Commission for the Blind,* 1945. 48 pp.

The New York Commission for the Blind has maintained over a period of years a preschool service to parents of blind children. The experiences resulting from intensive study and training of preschool blind children in their home environment under the direction of Gertrude Van den Broek have been garnered by her and offered in a *Guide for Parents of a Preschool Blind Child.* The information given is expressed with rare sympathy, freedom from sentimentality, yet with complete scientific accuracy and soundness. Any parent, teacher, doctor, nurse, or older person in contact with blind children will have a keener interest in and a more assured and understanding approach to their needs after a thoughtful reading of this booklet. It is enriched by a final chapter "What to Expect of Your Child" from his first to his sixth year, and a list of books for both parents and children. This unique and welcome guide may be obtained from the Commission for the Blind, New York State Depart-

ment of Social Welfare, 205 East 42nd Street, New York 17, N. Y.

DOROTHY DEMING

Vapor Adsorption — *By Edward Ledoux. Brooklyn, New York: Chemical Publishing Company, Inc.*, 1945. 360 pp. Price, $8.50.

In this book literature on adsorption from widely scattered sources has been compiled and coördinated. Parts I and II deal with thermodynamics of air-vapor mixtures and with adsorption equilibria (static adsorption). These are prerequisites to a clear understanding of dynamic adsorption which follows in parts III and IV. Among important applications discussed in detail are dehydration of gases, particularly air, for comfort air conditioning, or for industrial purposes by the use of silica gel or activated alumina. Absorption of water vapor with calcium chloride and condensation of vapors by refrigeration are also discussed as competing processes in special cases.

Separate chapters are devoted to conditioning of underground storage rooms and gas-proof shelters, drying of hygroscopic materials and optical instruments, dehydration of compressed air, and to recovery of vapors from air or other gases in process industries.

Although the book should appeal especially to chemical and air conditioning engineers, it should also be of value to industrial hygiene engineers who are concerned with removal of toxic, inflammable, or valuable gases from air of industrial rooms. C. P. YAGLOU

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

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Promising Foreshadow—In a huge sampling of the American population, the 1945 health record—aside from war losses—was excellent, the death rate being 2 per cent better than 1944. Expectation of life at birth is computed to be 65 years, a gain of 18 years in a third of a century.

ANON. War, Peace, and National Mortality. Stat. Bull. (Met. Life Ins. Co.), 27 1:1 (Jan.), 1946.

And Grim Reminder—Tuberculosis is still a major concern of public health even though the deaths dropped from a 5 year average of 60,000 per year to the middle 50,000's in 1944. The overall death rate declined 3 per cent from the 1943 rate but there were states in which whopping rises were reported.

ANON. Tuberculosis Mortality in Each State, 1944. Pub. Health Rep. 61, 5:144 (Feb. 1), 1946.

Pre-Atomic Records—How the 10 million casualties of the most destructive war (so far) are assumed to be divided among the belligerents constitutes dreadful evidence that aggression doesn't pay these days. The Germans are supposed to have suffered the greatest losses—3½ millions.

ANON. Military Deaths in World War II. Stat. Bull. (Met. Life Ins. Co.), 27, 1:6 (Jan.), 1946.

Public Un-Health—First hand account of France's "occupation disease," the result of famine, fatigue, deportation, pestilence, and filth, from the pen of a professor of medicine who survived them all. The country had little insulin, no glycerin or petrolatum, and all the physicians knew about penicillin was what they heard over the radio.

BESANCON, L. J. Public Health in France from the Invasion to the Liberation. War Medicine 8, 5:283 (Nov.-Dec.), 1945.

Topic for **Controversy**—If your particular job has any concern whatever with rheumatic fever, then you'll surely want to read these two lectures. If you have only a casual interest you'll find them formidable going. The term "rheumatic infection" may be a misnomer, for rheumatic fever may be a biochemical reaction of man, postulates the lecturer.

COBURN, A. F. The Rheumatic Fever Problem. Am. J. Dis. Child. 70, 5:339 (Nov.-Dec.), 1945.

"Let Us Not Be Weary of Well-Doing"—More evidence, if more is needed, that diphtheria immunization continues to pay extra dividends. With an epidemic producing a million cases a year in Continental Europe, England and the United States were spared, and in this country the rates were lowest where immunization was most nearly complete.

COLLINS, S. D. Diphtheria Incidence and Trends in Relation to Artificial Immunization, With Some Comparative Data for Scarlet Fever. Pub. Health Rep. 61, 7:203 (Feb. 15), 1946.

Is Influenza an Epidemiologic Brother to Measles?—In this not-to-be-missed paper, four points are discussed: agents which produce epidemics, possibilities in forecasting, survival between epidemics, and the mechanisms of periodicity. Even if it were possible, we would not attempt to epitomize the answers here. The jingle penned by Pope (Alexander, 1688–1744; not Alton).

"How index-learning turns no student pale
Yet holds the eel of science by the tail,"

cannot be applied to these annotations.

COMMISSION ON ACUTE RESPIRATORY DISEASES. The Periodicity of Influenza. Am. J. Hyg. 43, 1:29 (Jan.), 1946.

That Lingering Doubt—In a three county rural New York State district, 591 cases of poliomyelitis were studied. The results emphasized for the writers that the accepted person-to-person mode of spread is based on weight of evidence, *but* some of the reported observations do not fit too well into the contact theory. The epidemiologists wish they might have had the benefit of a public health virus laboratory.

CONWAY, J. A., and BIGWOOD, D. E. Observations Made during a Poliomyelitis Epidemic in 1944 in the Hornell State Health District, New York. New York State J. Med. 46, 3:275 (Feb. 1), 1946.

Have We Schafered after False Gods?—Experience with two apneic patients casts serious doubt upon the efficacy of the Schafer method for producing artificial respiration. The tilting table method resulted in better ventilation of the lungs.

COMROE, J. H., and DRIPPS, R. D. Artificial Respiration. J.A.M.A. 130, 7:381 (Feb. 16), 1946.

Our British Brethren Face the Facts—Assuming that the British Labor Government will take away the hospitals and clinics from the public health officials, will there be anything left for them to do? Well, yes, concludes this M. O. H. after some dismal speculation. The public must not be led to believe that health depends on hospitals or doctors or bottles of medicine, he quotes (in effect). Sanitation, housing, freedom from industrial hazards, recreation and education are what count most. So, the aggrieved health officer will still have plenty to do to keep him out of mischief whatever His Majesty's Government puts over on him.

JERVIS, J. J. Has Public Health Any Future? Pub. Health 59, 4:46 (Jan.), 1946.

More Polio Research—There is room for two schools of thought, assert these writers, one postulating the transmission of poliomyelitis exclusively through human contact, the other holding that extra-human reservoirs of virus exist. Though these researchers have

delved diligently into the possibility of animal vectors—their present work was concerned with house mice—they are led to the conclusion that evidence favors the direct human transmission of the disease.

JUNGEBLUT, C. W., and DALLDORF, G. Epidemiological and Experimental Observation of Poliomyelitis in New York City, (1943–1944). Am. J. Hyg. 43, 1:49 (Jan.), 1946.

Not Copyrighted—Of bright new British coinage is the appelative, "indoor storms" for the pollution of confined air with invisible showers of germs—sneezed and coughed. There is little new in the article about the prevention of spread of indoor infection except the very original title. Incidentally, administrators hereabouts would be mildly amused by this number of the *Health Educational Journal* if they could see it. The first paper entitled "Health Education" covers such divers matters as dental, prenatal, and mental hygiene clinics, social medicine, and mass feedings. Bemused administrators may wonder what is left in the whole field of public hygiene when the health educator is done.

MITMAN, M. Indoor Storms. Health Educ. J. 4, 1:21 (Jan.), 1946.

Dental Note—If lactobacilli and acidogenic cocci break down carbohydrates to destroy tooth enamel, then why not immunize the body against these germs? Repeated injections of vaccines made of these organisms were given to rats with what effect, do you suppose, on the numbers of the same germs found in the crypts of the rat's teeth? This time we'll save you trouble: the vaccines did not discourage the bacteria.

PARSONS, E. L., *et al.* The Effect of Immunization against Lactobacilli and Acidogenic Cocci on the Tooth Flora of the Rat. Am. J. Hyg. 43, 1:41 (Jan.), 1946.

It's High Time Department—If motion pictures have a place in mental hygiene, as this report upon military experience suggests, then films most certainly have an educational job to do in the other fields of public health, a job which—so far as I know—is being ignored masterfully by most established health agencies.

ROME, H. P. Motion Pictures as a Medium of Education. Ment. Hyg. 30, 1:9 (Jan.), 1946.

Child Health from the Business End—Herein is reported a British study of problem mothers, a problem mother being one who gives her children less than minimal care and refuses to coöperate with professional guidance. There were 89 among 7,215 families with one or more pre- or elementary school children. The children who survived this maternal neglect were discovered to be lousy, ill-fed, and retarded in school, and it was found further that the infant mortality rate was directly related to the intelligence of the mothers.

SAVAGE, S. W. Intelligence and Infant Mortality in Problem Families. Brit. M. J. 4437:86 (Jan. 19), 1946.

Good Red Blood—Our recent preoccupation with vitamins and minerals has tended to overshadow the subject of proteins. Now that good sources of protein foods are in short supply we begin—happily—to take a renewed interest in the factor which has so much to do with maintaining health. Three papers discuss in turn, clinical aspects, methods of securing high protein diets, and the use of food yeast as a supplement.

TUI, C. Some Clinical Aspects of Protein Nutrition (and two related papers). J. Am. Dietet. A. 22, 2:97 (Feb.), 1946.

BOOKS RECEIVED

THE ABC's OF PUBLIC RELATIONS FOR RECREATION. A Primer for the Recreation Worker. New York: National Recreation Assn., 1946. 64 pp. Price, $.85.

AN INTRODUCTION TO ESSENTIAL HYPERTENSION. By Richard F. Herndon, M.D. Springfield, Ill.: Thomas, 1946. 88 pp. Price, $2.50.

BETTER HEALTH FOR RURAL AMERICA. Plans for Action for Farm Communities. Interbureau Committee on Post-War Programs, U. S. Dept. of Agriculture. Washington, D. C.: Gov. Ptg. Office, 1945. 34 pp. Price, $.20.

BURMA SURGEON RETURNS. By Gordon S. Seagrave, M.D. New York: Norton, 1946. 268 pp. Price, $3.00.

DISABILITY AMONG GAINFULLY OCCUPIED PERSONS. An Introduction to Disability Insurance Statistics. By I. S. Falk, Barkev S. Sanders and David Federman. Washington, D. C.: Bureau of Research and Statistics, Social Security Board, 1945. Bureau Memorandum 61. 60 pp.

THE FALLING SICKNESS. A History of Epilepsy from the Greeks to the Beginnings of Modern Neurology. By Owsei Temkin, M.D. Baltimore: Johns Hopkins Press, 1945. 380 pp. Price, $4.00.

A GUIDE FOR NURSES IN THE NURSING CARE OF PATIENTS WITH INFANTILE PARALYSIS. New York: National Foundation for Infantile Paralysis, 1945. 29 pp. Free from publisher, 120 Broadway, New York 5, N. Y.

GUIDE FOR PARENTS OF A PRESCHOOL BLIND CHILD. By Van den Broek. New York: N. Y. State Dept. of Social Welfare, Commission for the Blind, 1945. 48 pp.

HANDBOOK FOR NURSES—DISASTER PREPAREDNESS AND RELIEF. Washington, D. C.: American National Red Cross, 1945. 62 pp. Free from publisher, 17th and D sts., N.W., Washington 13, D. C.

HEALTH AND PHYSICAL EDUCATION IN SMALL SCHOOLS. By Lois Pedersen Broady and Esther French. Lincoln: University of Nebraska Press, 1946. 343 pp. Price, $2.50.

HEALTH CARE OF THE FAMILY. By Ramona L. Todd, M.D., and Ruth B. Freeman, R.N. Philadelphia: Saunders, 1946. 530 pp. 69 illus. Price, $3.00.

THE HEALTH OF SCOTLAND. By James M. Mackintosh, M.D. Edinburgh: Oliver and Boyd, Ltd., 1943. 32 pp. Price, $.25.

HEALTH RECOVERY IN EUROPE. By Sir Arthur S. MacNalty, M.D., and W. Franklin Mellor. London: Frederick Muller, Ltd., 1946. 180 pp. Price, $2.00.

HELPING DISABLED VETERANS. Washington, D. C.: American National Red Cross, 1945. 72 pp.

INTER-AMERICAN CONFERENCE OF PROFESSORS OF HYGIENE. Washington, D. C.: Pan American Sanitary Bureau, 1945. Publication 212. 151 pp.

THE JEWS AND MEDICINE. Essays. By Harry Friedenwald, M.D. 2 Vols. Baltimore: Johns Hopkins Press, 1944. 817 pp. Price, $7.50.

THE ORIGIN AND DEVELOPMENT OF GROUP HOSPITALIZATION IN THE UNITED STATES, 1890–1940. By J. T. Richardson, Ph.D. Columbia: University of Missouri, 1945. 101 pp. Price, $1.25.

THE PECKHAM EXPERIMENT. A Study in the Living Structure of Society. By Innes H. Pearse, M.D., and Lucy H. Crocker, B.Sc. New Haven: Yale University Press, 1945. 333 pp. Price, $3.50.

PENICILLIN IN THE TREATMENT OF INFECTIONS: By Chester S. Keefer, M.D., and Donald G. Anderson, M.D. New York: Oxford University Press, 1945. 48 pp. Price, $1.50.

POISONS. THEIR PROPERTIES, CHEMICAL IDENTIFICATION, SYMPTOMS, AND EMERGENCY TREATMENTS. By Vincent J. Brookes and Hubert N. Alyea. New York: Van Nostrand Co., 1946. 209 pp. Price, $3.00.

PRECIS DES MALADIES INFECTIESES, AVEC NOTIONS SOMMAIRES DE PROPHYLAXIE, SEROTHERAPIE ET VACCINATIONS. Sous la direction des Professeurs C. Ionescu-Mihaesti et M. Ciuca. Geneva: Societe des Nations, 1945. 337 pp. Price, Frs. suisses 5.

PREVENTIVE MEDICINE AND PUBLIC HEALTH By Wilson G. Smillie, M.D., D.P.H. New York: Macmillan, 1946. 607 pp. Price, $6.00.

PUBLIC BATHS AND HEALTH IN ENGLAND, 16TH–18TH CENTURY. By Charles F. Mullett. Baltimore: Johns Hopkins Press, 1946. 85 pp. Price, $1.50.

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TAKE-OFF. By Grace T. Hallock. New York: National Tuberculosis Assn., 1945. 16 pp. Prices in quantities from publisher.

WHAT EVERY TEACHER SHOULD KNOW ABOUT THE PHYSICAL CONDITION OF HER PUPILS. By James Frederick Rogers, M.D. Washington, D. C.: Gov. Ptg. Office, 1945. Pamphlet No. 68. 19 pp. Price, $.10.

ASSOCIATION NEWS

SEVENTY-FOURTH ANNUAL MEETING
AMERICAN PUBLIC HEALTH ASSOCIATION
CLEVELAND, OHIO — NOVEMBER 12–14

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Gertrude R. Michalove, 3133 Connecticut Ave., Washington, D. C., Liaison Officer, Office of Health Information, U. S. Public Health Service

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Gertrude Owen, R.N., United States Indian Service, Dixon, Mont., Field Nurse

Albert W. Snoke, M.D., New Haven Hospital, New Haven, Conn., Director, Grace-New Haven Community Hospital

Harry P. Stimson, D.O., 7 E. Grand Ave., Highland Park 3, Mich., State Public Health Chairman, Michigan Assn. of Osteopathic Physicians and Surgeons

HOWARD M. KLINE, PH.D., APPOINTED TECHNICAL SECRETARY FOR MEDICAL CARE STUDIES

The Executive Board of the American Public Health Association, on recommendation of the Subcommittee on Medical Care, Committee on Administrative Practice, has appointed Howard M. Kline, Ph.D., of Washington, D. C., as technical secretary to head a staff to conduct studies under the direction of the committee.

It will be recalled that the Rockefeller Foundation, through the International Health Division, has recently made an appropriation to the Subcommittee on Medical Care for studies of existing programs, especially in relationship to health departments, and for the analysis of pending legislation (*A.J.P.H.* Mar. 1946, p. 302).

Dr. Kline, who is a native of Covington, Kentucky, is a graduate of the University of Toledo and holds the A.M. and Ph.D. degrees from the Maxwell School of Citizenship and Public Affairs, Syracuse University. His specialty in academic life was public law and public administration. He served on the instructional staff of Syracuse University, the University of Michigan, and the University of New Mexico, and was assistant professor of public law and public administration at the University of Maryland. For two years ending in 1944 Dr. Kline was chief of the State Consulting Service, Division of Vital Statistics, U. S. Bureau of the Census, Washington. Since January, 1944, he has been a commissioned officer in the U. S. Public Health Service detailed by the Division of Public Health Methods to Procurement and Assignment Service of the War Manpower Commission, more recently attached to the Office of the Administrator, Federal Security Agency.

Howard M. Kline

In this capacity he served as chief of the field and of the statistics sections, as assistant executive officer, and has most recently been serving as acting executive officer of the Procurement and Assignment Service.

Serving with Dr. Kline will be two staff associates whose appointments will be announced shortly.

DECEASED MEMBERS

Waller S. Leathers, M.D., Nashville, Tenn., Elected Member 1910, Charter Fellow, Life Member, Health Officers Section

Charlotte S. Greenhood, D.D.S., San Francisco, Calif., Elected Member 1945, Dental Health Section

John J. Heagerty, M.D., D.P.H., Ottawa, Ontario, Canada, Elected Member 1937, Health Officers Section

Thomas Kelly, V.M.D., Philadelphia, Pa., Elected Member 1929, Health Officers Section

Walter Kleberg, M.D., Galveston, Tex., Elected Member 1930, Health Officers Section

Mrs. Elin MacDougall, M.A., Bridgeport,

Conn., Elected Member 1944, Public Health Nursing Section

Willis C. Templer, M.D., Corning, N. Y., Elected Member 1936, Industrial Hygiene Section

Paul A. Teschner, M.D., Chicago, Ill., Elected Member 1943, Public Health Education Section

Edward F. Timmins, M.D., South Boston, Mass., Elected Member 1944, Health Officers Section

Margaret B. Wilson, Washington, D. C., Elected Member 1915, Unaffiliated

LETTER TO THE EDITOR

SIR:

I note with much interest, the article by Dr. Edith Potter on the Rh factor in the current Journal, as well as your editorial comment.

You may be interested to know that since 1944, the Paterson Board of Health Laboratories, at the request of the Passaic County Medical Society, have tested every prenatal specimen of blood received by us for the Wassermann test, for the Rh factor and blood grouping as well. I am enclosing a reprint describing the results of the first year of or work. (*J.A.M.A.*, May 5, 1945, Vol. 128, p. 19.) As far as I know, we are the first municipal laboratory to enter this field.

I wish I could agree with the comment on the simplicity of the test. Like all serological tests, it must be carefully handled by experienced serologists. Many are the crimes committed in the name of Rh by the inexperienced technician. Then, too, all Rh is not divided into two parts of which one shall be clearly Rh-positive and the other Rh-negative. The subtype rears its head, etc.

I congratulate you on having secured so eminent an authority as Dr. Potter to write that fine article.

ANNA I. VAN SAUN,
Director

Paterson, N. J.

EMPLOYMENT SERVICE

The following pages present information for those seeking qualified public health personnel and for those seeking positions in public health.

This is a service of the Association conducted without expense to the employer or employee.

Address all correspondence to the Employment Service, A.P.H.A., 1790 Broadway, New York 19, N. Y., unless otherwise specified.

Vacant Positions Listed with the Association's Vocational Counseling and Placement Service

A considerable number of additional openings for candidates trained in the various public health specialties have come to the attention of the American Public Health Association's Vocational Counseling and Placement Service during the past month. At the time this issue of the *Journal* goes to press the number of all available openings listed has increased to 412 positions offered by 122 employers in more than 30 states and territories. The openings are in official agencies on local, state, and federal levels, as well as in voluntary health agencies and in a few industrial companies.

Two hundred forty openings—58 per cent of the total number—were offered to physicians for positions carrying administrative, epidemiologic, and (more infrequently) clinical responsibilities. Eighty-two positions were listed for sanitary engineers and sanitarians, 5 for industrial engineers, 11 for non-medical administrators, 7 for dentists, 27 for health educators, 24 for laboratory workers, 5 for statisticians, and 11 for allied professional groups.

One hundred forty-three trained candidates in the various professional categories have recently indicated their interest in public health positions and have filed or reactivated their applications for registration with our Placement Service; a great percentage of them are veterans of the armed forces or expect their release in the near future. Candidates for openings in the field of public health nursing are not registered but are being referred to professional placement agencies for clearance.

The Vocational Counseling and Placement Service is jointly sponsored by the American Public Health Association's Committee on Professional Education and the U. S. Public Health Service. It offers free assistance to all employers and trained candidates for positions in the public health field and trained specialists available for counsel by personal contact and correspondence with all men and women who are interested in public health work.

Positions Available

(Supplemental to list in March Journal)

Wanted: Director, State-wide Hospital Survey. Survey of hospital facilities in Maryland planned under special committee of State Planning Commission. Applicant must have experience in hospital administration and community organization. Salary $5,000 plus travel expense. Apply J. D. Colman, Director, Associated Hospital Service of Baltimore, Inc., 506 Park Ave., Baltimore 1, Md.

Wanted: Medical Director. New prepayment medical care program under joint sponsorship of State Medical Society and Blue Cross needs full-time medical director. Starting salary $6,000 per annum. Apply J. D. Colman, Director, Associated Hospital Service of Baltimore, Inc., 506 Park Ave., Baltimore 1, Md.

Tennessee Department of Public Health announces vacancies for public health officers, sanitary engineers, chemical engineers in stream pollution control and industrial hygiene work, and for public health nurses. Salary dependent on training and experience. Apply State Department of Health, Nashville 3, Tenn.

Commercial opening for health man. Large specialty manufacturing organization with nation-wide sales force and a number of public relations men who call on health officers. If you have public health background and feel you might like to get into commercial life this opportunity may appeal. Ability to deal with people important. Also ability to write and speak before P.T.A. groups, etc. Travel necessary. Write fully in confidence giving complete background, education, compensation. **Box L,** Employment Service, A.P.H.A.

Industrial Hygiene Engineer position available with Oregon State Board of

Health, Portland, Ore. $300–$375 per month. Requires B.A. in Chemical Engineering, 2 years as industrial hygiene engineer in government agency, 1 year graduate work in chemical engineering or industrial hygiene (2 years' engineering experience may be substituted for 1 year graduate work). Unassembled examination. Write Merit System Council, 616 Mead Bldg., Portland 4, Ore.

Wanted: Public Health Nurses for generalized nursing program. Salary range $210 to $240 per month. Under Civil Service, 40 hour week, vacation and sick leave privileges. Address Director of Public Health Nursing, City of Seattle, 504 County City Bldg., Seattle 4, Wash.

Wanted: Full-time dentist interested and qualified in preventive, public health, and children's dentistry. Position established by Marin Co. Health Dept. Salary $4,800 plus travel expense. Dental trailer with complete equipment furnished. Public health experience and training desirable. Must be licensed in California. Apply Irving D. Johnson, M.D., Marin Co. Health Officer, 704 4th St., San Rafael, Calif., stating personal data, educational background and experience.

Wanted: Executive Director for public health generalized service, with college degree and experience in public health nursing. Agency is in suburban Philadelphia. **Box P**, Employment Service, A.P.H.A.

Wanted: Physician qualified to assume position as Director of Maternal and Child Health and Crippled Children Division. Minimum requirements include public health training and experience and training in pediatrics. Salary $325 to $350. Under Merit System. Address State Board of Health, Capitol Building, Cheyenne, Wyoming.

Wanted: Physician qualified to assume position as Director of Division of Communicable Disease Control. Special attention given to tuberculosis. Salary $325 to $350. Under Merit System. Address State Board of Health, Capitol Building, Cheyenne, Wyoming.

Research **Fellowship** in Sanitary Engineering available to graduate engineer with special training in chemistry and bacteriology. $1,000 per annum with two-thirds residence time credited toward M.S. degree. Address, Director, Engineering and Industrial Experiment Station, University of Florida, Gainesville, Fla.

Wanted: Qualified public health physicians and public health nurses in Texas. Applicants should have specialized training or experience in public health work. George W. Cox, M.D., State Health Officer, Austin, Texas.

Wanted Immediately: Public Health Nursing Supervisor with B.S. degree. Generalized program. Salary from $190 to $225 plus car allowance. City of 105,000. Apply Dr. E. V. Thiehoff, Commissioner of Health, City Health Dept., Peoria, Ill.

Wanted: Health Educator. Entrance salary $3,758, top salary $4,298 per annum; Epidemiologist and Registrar of Vital Statistics, M.D., with experience in epidemiology, entrance salary $4,500, top salary $5,000 plus, per annum; **Staff Physician** for health districts, qualification M.D., entrance salary $3,158, top salary $3,879 per annum. Apply Commissioner of Health, City Hall, Cincinnati 2, Ohio.

Physician Wanted: Man or woman with general clinical experience and public health background for Alaska Marine Health Unit. Services include TB case finding, x-rays, physical examinations, immunizations, well baby conferences, pre- and post-natal examinations, VD control and allied public health procedures. Vessel is 115', well appointed, comfortable, accommodating physician, nurse, laboratory technician, secretary, dental hygienist and crew. Position offers opportunity for travel and service to communities along Alaska's scenic coastline. Communicate with Territorial Dept. of Health, Box 1931, Juneau, Alaska.

Wanted: Registered Nurses, college degree, public health certificate. Five day week, travel position, $220 per month full maintenance in field. Apply American National Red Cross Pacific Area, Nursing Service, Civic Auditorium, San Francisco, Calif.

Wanted: White and colored public health nurses with cars for Migratory Labor Health Association. Salary $2,100, 40 hour week. Nursing service to Jamaican and domestic farm workers housed in camps in Florida, South Carolina, North Carolina, and Virginia. Apply Area Supervising Nurse, Box 1671, West Palm Beach, Fla.

Position open for bacteriologist-chemist, pathologist. Permanent, full-time. State qualifications, experience and salary expected. Apply Box 583, Fall River, Mass.

Sanitary Engineers and graduate sanitarians, college degree required, wanted for overseas work. Starting salaries from $3,450 to $5,325 depending on qualifica-

tions. Full maintenance provided. Apply U.N.R.R.A. Health Division, Building F, 1344 Connecticut Ave., Washington, D. C.

Oregon State Board of Health has openings in following positions: County Health Units Director, salary range $400 to $500 per month. Venereal Disease Control Officer, beginning salary $450 per month. Tuberculosis Control Officer, beginning salary $450 per month. Several county health officer positions open, salary range $400 to $525 per month. Ample travel allowance. Apply A. T. Johnson, Personnel Officer, Oregon State Board of Health, Portland 5, Ore.

Hawaii Board of Health Wants:

Psychiatrist to direct bureau of mental hygiene. Salary $645 to $728.33 plus $45 bonus. Qualifications: 2 years' experience in psychiatry and neurology following graduation from medical school of recognized standing, including or supplemented by 1 year internship in recognized general hospital and supplemented by 2 years' specialized training in psychiatry and neurology.

Obstetrician to assist in execution of program of maternal and child health. Salary $520 to $620 plus $45 bonus. Qualifications: 3 years' experience or specialized training in obstetrics following graduation from medical school of recognized standing, including or supplemented by 1 year internship in recognized general hospital and 1 year graduate training in public health.

Public Health Physician to direct public health program of county district. Salary $520 to $620 plus $45 bonus. Qualifications: 2 years' experience as physician, preferably in public health work, and graduation from medical school of recognized standing, including or supplemented by 1 year internship in recognized general hospital and supplemented by 1 year graduate training in public health.

Three Sanitary Engineers. One as division director with P-5 classification to direct mosquito control program, salary $436.67 to $520 plus $45 bonus. Second position, P-4, that of engineer-in-charge of sanitary engineering projects in county district, salary $362.08 to $436.67 plus $45 bonus. Third position, P-3, that of housing engineer responsible for housing program, salary $295.42 to $362.08. Experience: For sanitary engineer, P-5, 4 years' professional engineering experience of which 2 years shall have been in sanitary engineering work; for county sanitary engineer, P-4, 3 years' experience in sanitary engineering work; for housing engineer, P-3, 2 years' experience in sanitary engineering work, preferably housing. Training: For all 3 sanitary engineers, graduation from college or university of recognized standing, with specialization in engineering, preferably supplemented by courses in public health engineering. Write to Civil Service Commission, Territory of Hawaii, 206 Hale Auhau, Honolulu, Hawaii. Use clipper mail.

Wanted: Physician in Hartford, Conn., population 185,000, as Director of Bureau of Maternal and Child Hygiene. Write Health Officer, Department of Health, Hartford 4, Conn.

Minneapolis, Minn., seeks Director of Venereal Disease Control. Beginning salary $5,000. Applications close April 30, 1946. Residence requirement waived. Requirements: Graduation from medical school of recognized standing, registration or eligibility for registration as physician in Minnesota, completion of postgraduate study in public health school of recognized standing with C.P.H. or M.P.H. degree. Not less than 1 year general clinical experience preferably in hospital of acceptable standards and 1 year experience as director of public health program in city, county or state health department, or as director of venereal disease control program. Full-time position. Apply Civil Service Commission, 109 City Hall, Minneapolis, Minn.

Wanted: Assistant in Health Division, Council of Social Agencies, interested in community organization and health education. Large city and metropolitan area. Training and experience in public health organization and health education required. Write **Box G,** Employment Service, A.P.H.A.

POSITIONS WANTED

Public Health Administrator, B.A., M.S.P.H., recently released after 4 years' service as hospital adjutant and assistant medical inspector, seeks position as administrator or health educator. Experienced in teaching field. Organizing ability. References. **A-517**

Senior Bacteriologist, Ph.D., 25 years' experience in public health and medical bacteriology, 3 years executive laboratory post in Army general hospitals, seeks hospital or public health laboratory connection. **L-487**

Bacteriologist, woman, B.S. 1941, 4½ years' laboratory experience, hospital and public health, seeks position in or near New York City. Prefer desk position such as technical literature research,

abstracting, etc. Also interested in laboratory work. **L-481**

Bacteriologist: M.A., Johns Hopkins, seeks position in medical college or state public health laboratory. Broad experience. **L-482**

Chemist, experienced in food, drug and insecticide analysis, seeks laboratory position. **L-483**

Pathologist, Board Diplomate, competent and experienced in pathologic anatomy, clinical pathology, bacteriology and tropical medicine; years of public health experience as laboratory director and research associate, consultant, professor and executive; numerous publications, excellent references. Age 40. L-472

Serologist-Bacteriologist, Ph.D., D.V.M., 16 years' experience in public health and hospital work, 3 years in charge Army hospital laboratory. Desires Directorship with opportunity for research. L-426

Bacteriologist with service experience in food bacteriology, enteric group studies, respiratory diseases, malaria and epidemiological problems, seeks position in New England or Midwest. **L-485**

Health Educator, Woman, Negro, trained in public health, community organization, adult education, workers education and related fields and experienced as teacher, seeks position with voluntary or official agency or as teacher. **H-518**

Sanitary Engineer, 5½ years' operational experience city sewage plant, nearly 4 years Captain in Sanitary Corps, U. S. Army, seeks position as sanitary engineer in Eastern U. S. **E-488**

Veterinarian, recently released from U. S. Public Health Service, formerly in practice, seeks part-time or full-time position with city, state or county health department in State of Virginia or Illinois. **M-463**

Examinations for U.S.P.H.S. Appointments

Examinations for medical officers, Regular Corps, U.S.P.H.S., at various convenient localities throughout the country. Appointments to fill vacancies of Assistant Surgeon (First Lieutenant) and Senior Assistant Surgeon (Captain).

Regular Corps appointments, permanent. Qualified doctors for a number of fields, including research, general hospitals, special hospitals, foreign duty, and public health programs. Assignments according to abilities and experiences.

Entrance pay, Assistant Surgeon with dependents, $3,411 a year. Senior Assistant Surgeon with dependents, $3,991 a year. Promotions regular intervals up to and including the grade of Medical Director which corresponds to full Colonel at $7,951 a year. Retirement pay at 64, $4,500 a year. Full medical care including disability retirement at three-fourths pay. Expenses of travel paid by Government. Thirty days' annual leave with pay.

Applicants for the grade of Assistant Surgeon must be citizens of the United States, must present diploma of graduation from recognized medical school, have had or be in the process of completing the 7th year of college or professional training or experience since high school graduation (2 years premedical, 4 years of medicine, 1 year internship), and must have physical examination at the place of oral examination by medical officers of the Service. Applicants for the grade of Senior Assistant Surgeon must meet above requirements and have had 4 additional years of postgraduate training or experience.

Examinations *oral and written.* Written examination *May 14, 15, and 16,* at places convenient to the candidate and the Service. National Board grades may be used for the Assistant Surgeon examination. Oral examination at 9 a.m. at the places and dates listed:

Atlanta, Ga.—Malaria Control in War Areas, 605 Volunteer Bldg	Apr. 22
Baltimore, Md.—Marine Hospital, Wyman Park Drive & 31st Street	May 9
Boston, Mass.—Marine Hospital, 77 Warren Street (Brighton)	May 6
Chicago, Ill.—Marine Hospital, 4141 Clarendon Avenue	Apr. 30 May 1
Cleveland, Ohio—Marine Hospital, Fairhill Road & E. 124th Street	May 3
Denver, Colo.—617 Colorado Bldg	Apr. 8
Detroit, Mich.—Marine Hospital, Windmill Pointe	May 2
Fort Worth, Tex.—U. S. Public Health Service Hospital	Apr. 25
Kirkwood, Mo.—Near St. Louis—Marine Hospital, 525 Couch Ave	Apr. 26, 27
Los Angeles, Calif.—U.S.P.H.S. Relief Station, 406 Federal Building	Apr. 9
Minneapolis, Minn.—Office of Indian Affairs, 218 Federal Office Building	Apr. 29
New Orleans, La.—Marine Hospital, 210 State St.	Apr. 23, 24
New York, N. Y.—Marine Hospital, Stapleton, Staten Island	May, 7, 8
Norfolk, Va.—Marine Hospital, Hampton Blvd., Larchmont	May 10
San Francisco, Calif.—Marine Hospital, 14th Ave. and Park Blvd.	Apr. 10, 11
Seattle, Wash.—Marine Hospital, Judkins St. and 14th Ave. South	Apr. 12, 13
Washington, D. C.—U.S.P.H.S. Dispensary, Fourth and D Sts. S.W.	Apr. 4 May 13

Application forms may be obtained by *writing to the Surgeon General, U. S. Public Health Service, Washington 25, D. C.*

Announcement of Examination for Appointment of Sanitary Engineers to the United States Public Health Service

An examination for appointment as Assistant Sanitary Engineer and Senior Assistant Sanitary Engineer in the Regular Commissioned Corps of the United States Public Health Service is scheduled to be held at

Washington, D. C.—USPHS Dispensary, Fourth and D Streets, S.W.....	April 15 June 3
New York New York—Stapleton, Staten Island—Marine Hospital.....	April 17
Cincinnati, Ohio—USPHS Water & Sanitation Investigation Station, East Third and Kilgour Streets.....	April 19
Atlanta, Georgia—Malaria Control in War Areas, 605 Volunteer Bldg.....	May 15
New Orleans, Louisiana—Marine Hospital, 210 State Street.....	May 17
Los Angeles, California—USPHS Relief Station, 406 Federal Bldg.....	May 21
San Francisco, California—Marine Hospital, 14th Ave. and Park Blvd.....	May 23
Seattle, Washington—Marine Hospital, Judkins St. and 14th Ave. South..	May 27
Denver, Colorado—USPHS District Office, 617 Colorado Building.....	May 29
Chicago, Illinois—Marine Hospital, 4141 Clarendon Avenue.....	May 31

The oral professional, academic, and physical examinations will be held at 9 A.M. at places and dates given above. The final written portion of the examination will be given simultaneously at the above locations beginning on June 5, 1946, and ending on June 7, 1946. The written portion of the examination may be given at certain other stations of the Service where two or more regular commissioned officers are on duty, if request is made by an applicant. Minimum age—21.

Education and Training: (1) Assistant, at least 7 years of educational (exclusive of high school) and professional training or experience and a degree in engineering (sanitary engineering course); (2) Senior Assistant, as above plus 4 additional years of post-graduate professional training or experience.

Compensation (including allowance for quarters and subsistence): (1) Assistant, $3,411.00 with, and $2,975.50 without dependents; (2) Senior Assistant $3,991.00 with, and $3,555.50 without dependents.

Applicants should address a letter to the Surgeon General, U. S. Public Health Service, Washington, D. C., at the earliest practicable date, requesting application blanks. Such letter should include a brief biographical statement relative to professional school or college attended, type of studies pursued, degrees granted and subsequent training or experience. Applicants of foreign birth must furnish proof of United States citizenship.

Transportation expenses to and from and cost of maintenance at place of examination must be assumed by the candidate.

Announcement of Scholarships in Nutrition

Four scholarships available, through North Carolina State Board of Health, at University of Tennessee, Knoxville, for year 1946. Applicants can enter in March or June. Scholarships will provide stipend of $100 a month for 12 months plus tuition fees and travel while in training. Training period will be for 12 months and will include 9 months' formal training and 3 months' supervised field work. Eligibility requirements: (a) Age between 23 and 35 years; (b) Bachelor's degree in foods and nutrition, chemistry or biological sciences from a recognized institution; (c) teaching, hospital dietetics, nutrition research or other related subjects for a period of at least 2 years. Upon successful completion of training at University of Tennessee, candidates will be employed as nutritionists by North Carolina State Board of Health. Salary scale for nutritionists is $1,800 to $3,000 with additional travel allowance of $1,200 a year. Interested applicants should send transcript of their college record and statement of experience since graduation to Director of Nutrition Division, State Board of Health, Raleigh, N. C.

Advertisement

Opportunities Available

WANTED—(a) Public health physician to serve as medical associate on staff of national health agency; duties include program planning, writing, speaking, and travel; headquarters in New York. (b) Professor and head of department of Hygiene; state university planning extension program and offering curriculum in Public Health whereby students may major and receive baccalaureate degree; young man experienced in teaching qualified to develop program required. (c) Director of communicable disease division; central metropolis; ex-service man who wishes a career in public health work preferred; Middle West. (d) Woman physician to take charge of medical department of progressive day school connected with university; approximately 800 children from 4 to 16; ninety from 2 to 4. (e) Public health physician with administrative experience or ability to direct department serving town of 45,000; progressive program, well staffed department; South. (f) Assistant health officer, preferably tuberculosis clinician with public health experience; town of 40,000 in Southern California; $4,500 including travel expenses. (g) County health officer; in-service training provided; woman eligible; minimum $4,200; clinician, venereal disease control program; $4,500; South. (h) Woman physician to succeed director of student health department in young women's college; enrollment approximately 1,300 students; 200 faculty; medical staff comprised of four full-time physicians and consultant psychiatrist; modern infirmary with well equipped x-ray and laboratory department; faculty appointment with full voting privilege. (i) County health officer; winter resort town; $5,000-$5,700, including travel expense; South. **PH4-1** The Medical Bureau, Burneice Larson, Director, Palmolive Building, Chicago 11.

WANTED—(a) Health coördinator; small community in Wisconsin; well organized program. (b) Health educator; private, non-profit agency providing medical care and health services to large group of workers; Master's degree in education with major in health education desirable; $3,600 plus travel allowance. (b) Health educator; public school system; Southwest; immediately. (c) Health educator; tuberculosis agency; East. **PH4-2** The Medical Bureau, Burneice Larson, Director, Palmolive Building, Chicago 11.

WANTED—(a) Public health supervisor; county department of health; Southern California. (b) Several public health nurses; considerable travelling; good climate, roads and opportunity for advancement; winter resort area of the South. (c) Instructor in health; state teachers' college; duties consist of serving as nurse instructor in department of health of college and working with physicians in student health department; East. (d) Public health nurse qualified in tuberculosis nursing to supervise tuberculosis program; county health department; possibility of clinic being developed as research unit; East. (e) Several public health nurses; in-service training provided during which time salary will be $135 monthly; South. (f) Clinic nurse; county health department; public health certificate necessary; Washington State. Executive director, visiting nurse association; small organization; interesting expansion plans; will have opportunity of selecting own workers; $3,000; car provided; town of 150,000; Middle West. **PH4-3** The Medical Bureau, Burneice Larson, Director, Palmolive Building, Chicago 11.

Advertisement

Opportunities Wanted

Administrator—Military officer of high rank is available for administrative position in public health; trained in public health before entering Army; considered one of the outstanding commanders of general hospitals; leaders in military and civilian hospital and medical fields unite in recommending him as outstanding administrator, well able to serve as administrator for metropolitan city or large area; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

Dentist, Veteran World War II; certificate from Forsyth Infirmary for Children; several years, public health experience and two years' private practice before joining Armed Forces; available immediately; for further information, please write Burneice Larson, Director, The Medical Bureau, Palmolive Building, Chicago 11.

Health educator; Master of Science degree in public health; thorough knowledge in general public health (administration, biostatistics, epidemiology, industrial hygiene, dental hygiene, tuberculosis and venereal disease control, etc.) and in principles, methods and functions of public health education; record of interesting administrative experience; for further information please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

Public health nurse; B.S. degree with major in public health nursing; professionally trained in university school of nursing; five years' supervising experience in public health; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

NEWS FROM THE FIELD

INTERNATIONAL ACTION IN THE FIELD OF PUBLIC HEALTH

The Economic and Social Council of the United Nations has recently adopted a resolution regarding an International Health Conference. A meeting of a technical preparatory committee was called to meet in Paris, France, not later than March 15, and instructions were given to call the conference of the United Nations to consider the scope of and the appropriate machinery for international action in the field of public health not later than June 20, 1946, at a place to be fixed in consultation with the President of the Economic and Social Council.

Experts from 17 different countries are to attend the meeting of the preparatory committee. Thomas Parran, M.D., Surgeon General of the U. S. Public Health Service, has been designated the United States Expert and James A. Doull, M.D., Medical Director, U. S. Public Health Service, has been designated alternate. Drs. Parran and Doull were expected to leave Washington on March 15 for the meeting. The resolution follows:

The Economic and Social Council, taking note of the Declaration proposed by the Delegations of China and Brazil at San Francisco and unanimously approved regarding an international health conference, and recognizing the urgent need for international action in the field of public health,

1. Decides to call a Conference of the United Nations to consider the scope of, and the appropriate machinery for, international action in the field of public health and the proposals for the establishment of a single international health organization of the United Nations;

2. Urges the Members of the United Nations to send as representatives to this Conference experts in public health;

3. Establishes a technical Preparatory Committee to prepare draft annotated agenda and proposals for consideration of the Conference, and appoints the following experts or their alternates to constitute the Committee;

4. Directs the Technical Preparatory Committee to meet in Paris not later than March 15th and to submit its annotated agenda and proposals to the members of the United Nations and to the Council not later than May 1st.

5. Decides that any observations it may make at its second session on the report of the Technical Preparatory Committee will be communicated to the proposed international Conference.

6. Instructs the Secretary General to call the Conference not later than June 20th, 1946, at a place to be fixed in consultation with the President of the Economic and Social Council.

DR. STEBBINS RESIGNS AS NEW YORK CITY COMMISSIONER OF HEALTH

The resignation of Ernest L. Stebbins, M.D., M.P.H., who has been Commissioner of Health of New York City since July 15, 1942, was announced March 4 by Mayor O'Dwyer, who at once appointed Edward M. Bernecker, M.D., as Commissioner of Health to succeed Dr. Stebbins.

Dr. Stebbins when appointed was Professor of Epidemiology at the Columbia University School of Public Health, New York City, having previously served on the staff of the New York State Department of Health in several capacities, and in Virginia as a county health officer. Dr. Stebbins is a graduate of Rush Medical College in

Chicago in 1930, and holds the M.P.H. from Johns Hopkins University School of Hygiene and Public Health. His appointment as Professor of Public Health Administration at Johns Hopkins has been announced effective July 1, 1946, when he will succeed Allen W. Freeman, M.D., on his retirement.

Dr. Bernecker was born in 1892, and is a graduate of the Hahnemann Medical College and Hospital, Chicago, 1915. He has served with the New York Department of Hospitals for about 30 years, having served as Commissioner of Hospitals since 1942. Dr. Bernecker's successor as Superintendent of Hospitals is William F. Jacobs, M.D., who has been Medical Superintendent of Bellevue Hospital, New York City.

VOLUNTARY MEDICAL CARE PLAN OF AMERICAN MEDICAL ASSOCIATION

According to an announcement dated February 16, 1946, the American Medical Association is developing a country-wide system of voluntary sickness insurance protection to be operated on a non-profit basis by local medical groups. Details of the program will be worked out and administered by a director and staff of a newly created Division of Prepayment Medical Care Plans of the Association.

Four standards of acceptance by the American Medical Association Council on Medical Care for voluntary prepayment medical and hospital care plans were adopted as follows:

1. Approval of the state or county medical society in the area in which they operate
2. Responsibility for the medical services included in the benefits assumed by the medical profession in the area
3. Free choice of a qualified physician and maintenance of personal confidential relationship between patient and doctor
4. Operation to provide the greatest possible benefits in medical care to subscribers

Details of the program were announced in the *J.A.M.A.* for Feb. 23. It has already been determined that premiums may vary in different parts of the country; nor need method of paying benefits be uniform; they might be in terms of either cash indemnity or in units of medical service.

A subsidiary organization, Associated Medical Care Plans Inc., made up of participating insurance groups, will undertake to establish coördination and reciprocity among the various local plans to permit transference of subscribers from one plan to another and use of benefits in any state in which a subscriber happens to be located. This subsidiary group will undertake research, compile statistics on medical care, provide consultation and information on existing plans, and sponsor an educational program to acquaint the public with the voluntary insurance program.

ROCKEFELLER FOUNDATION GRANTS $78,500 FOR COÖRDINATION OF VOLUNTARY HEALTH AGENCIES

To support a program of coördinating the 20,000 voluntary health agencies of the country, the Rockefeller Foundation has granted $78,500 to the National Health Council, New York, N. Y., with which the Council, under the leadership of a Citizens' Planning Committee and an outstanding new director to be selected, plans facilities for joint planning, joint activities and services for the national agencies, the organization of new and the strengthening of established local health councils, and a counselling field service to local agencies. Demonstrations in the coördination of local health agencies will be carried on, as well as coöperation with Community Chests and Councils in unified fund-raising campaigns for those national health agencies wishing to join in a United effort.

Commenting on the Foundation's grant, Eleanor Brown Merrill, President of the National Health Council,

said "The grant presents a great opportunity to accomplish needed coördination in the whole voluntary field. The Council will be able to assume the dynamic leadership for which the national situation, as well as the local agencies, have been calling. There are few projects which should have a more constructive effect upon the future health of the American people."

A Rockefeller Foundation grant made possible the establishment of the National Health Council in 1921. It also financed the 4 year Gunn-Platt study, the report of which, *Voluntary Health Agencies,* was published in September, 1945. In focusing attention upon the unevenness and weakness in the accomplishment of many local agencies it has already stimulated a number to appraise their work and to seek guidance and counsel. The new program of the National Health Council will make it possible to provide consultation services.

ANNIE WARBURTON GOODRICH—80 YEARS

To mark her 80th birthday, the *American Journal of Nursing* and four hundred leaders in nursing, public health, science and medicine honored Annie W. Goodrich with a luncheon in New York on February 26. A handsome brochure summarized her achievements, beginning in 1893, when she became Superintendent of Nurses of New York Post-Graduate Hospital down to 1934, when she retired as Dean of the Yale University Nursing School which she had organized in 1923. In the years between she had been Superintendent of Nurses at St. Luke's and New York Hospitals, taught at Teachers College, headed the Nurse Training School of Bellevue Hospital, inspected nurse training schools for the New York State Department of Education, directed the Henry Street Visiting Nurse Service, and organized the Army School of Nursing during the first World War.

She has studied nursing conditions in both Europe and the Orient, holds numerous honorary degrees, and has been awarded the Medaille d'Honneur de l'Hygiene Publique and the Silver Medal of the Ministry of Social Welfare by France. At present she is a member of the Board of Nursing Advisors of the Yale Institute of Living.

Among those who signalized her contributions to nursing education and nursing service were Professor C.-E. A. Winslow, Dean Alonzo Curran of the Long Island College of Medicine, John H. Hayes, President Elect of the American Hospital Association, and Mary Elizabeth Tennant of the Rockefeller Foundation. Pearl McIver presided.

Dr. William P. Shepard, on behalf of the American Public Health Association and its Committee on Professional Education sent greetings:

"Please accept congratulations on your many years of outstanding service to professional education in general and to nursing education in particular. It is amazing to reflect on the progress of nursing in the span of your lifetime. It is a privilege to tell you how much we appreciate your many valuable and lasting contributions to this progress. We who are interested in attracting superior people to the public health field and in making public health careers more attractive salute you and gratefully acknowledge your achievement and assistance."

$200,000 FOR TROPICAL DISEASE RESEARCH

The Department of Public Health and Preventive Medicine of Cornell University Medical College has begun a ten year program of research in the "immunologic and allergic manifestations of exotic disease, and to provide for a better understanding of their prevention and treatment in relation to other allergic diseases." This study is made possible by a grant of $20,000 annually for ten years from the Marcelle Fleischmann Foundation, organized by E. M. Fleischmann of Baltimore in

memory of his wife. The Foundation is interested primarily in allergic diseases and their various manifestations.

Wilson G. Smillie, M.D., Director of the Department of Public Health and Preventive Medicine, in announcing the grant early in 1946, reported that research was already under way, under the leadership of Dr. Morton C. Kahn, Associate Professor of Public Health and Preventive Medicine, assisted by a staff of five. Such fields as malaria, filaria, and the schistosomes will be investigated.

CLEVELAND MUSEUM IN A NEW HOME

The February *Museum News* of the Cleveland Health Museum announces that its new home is being prepared for Spring occupancy. Three doors from the present location, the new building will provide for the expanding services of the Museum. Floor plans show how the building will be utilized for exhibits, classrooms, lecture halls, and other purposes.

FRIEND LEE MICKLE HONORED FOR TWENTY-FIVE YEARS OF SERVICE

Friend Lee Mickle, Sc.D., was recently honored by his associates in the Bureau of Laboratories, Connecticut State Department of Health, Hartford, in recognition of the completion of 25 years of service as Director of the Bureau. A gold wrist watch was presented to him by Earl K. Borman, Assistant Director of the Laboratory, on behalf of his colleagues. Dr. Mickle, formerly a member of the Executive Board, A.P.H.A., and Chairman of the Laboratory Section, is now Chairman of the Standard Methods Committee for Frozen Desserts and Ingredients.

AMERICAN PUBLIC HEALTH EXPERTS CALLED TO TOKYO

The authorities in charge of public health in Japan have announced that John R. Paul, M.D., Professor of Preventive Medicine at Yale University School of Medicine, New Haven, and W. D. Hammon, M.D., Associate Professor of Epidemiology at George Williams Hooper Foundation, University of California, San Francisco, arrived on March 1 in response to an invitation to them to study the prevailing Japanese encephalitis and measures which may be used to prevent its spread to the occupying forces.

LUCILE PETRY BECOMES CHIEF, DIVISION OF NURSING, U. S. PUBLIC HEALTH SERVICE

The appointment of Miss Lucile Petry, who recently has been head of the U. S. Cadet Nurse Corps, as Chief of the new Division of Nursing of the U. S. Public Health Service, has been announced by Dr. Thomas Parran, Surgeon General. She will rank as Nurse Director while serving as chief of a division. Miss Petry joined the Public Health Service in 1941 as nursing consultant and became director of the Cadet Nurse Corps in July, 1943. She is a graduate of the University of Delaware and of Johns Hopkins School of Nursing, and holds a Master's degree from Columbia University Teachers College.

According to Dr. Parran, the Division of Nursing in addition to being responsible for administration of the Cadet Nurse Corps will coördinate all nursing activities of the Public Health Service. It is a recognition of the great importance of nursing activities as part of the total health program. The responsibilities of the division will include public health nursing, hospital nursing, and nurse education. The senior assistants to Miss Petry will include Pearl McIver, R.N., Jessie MacFarlane, R.N., Minnie E. Pohe, R.N., Claire H. Favreau, R.N., and Mary J. Dunn, R.N.

HERMANN M. BIGGS MEMORIAL LECTURES

The New York Academy of Medicine

has announced that the Hermann M. Biggs Memorial Lecture which is held annually in Hosack Hall at the New York Academy of Medicine under the auspices of the Committee on Public Health Relations will be delivered this year on Thursday, April 4 at 8.30 P.M. by Laurence H. Snyder, Sc.D., Professor of Medical Genetics, Department of Medicine, Ohio State University.

The subject of the lecture will be "Medical Genetics and Public Health."

This lecture is open to the general public.

MASSACHUSETTS PUBLIC HEALTH ASSOCIATION OFFICERS FOR 1946

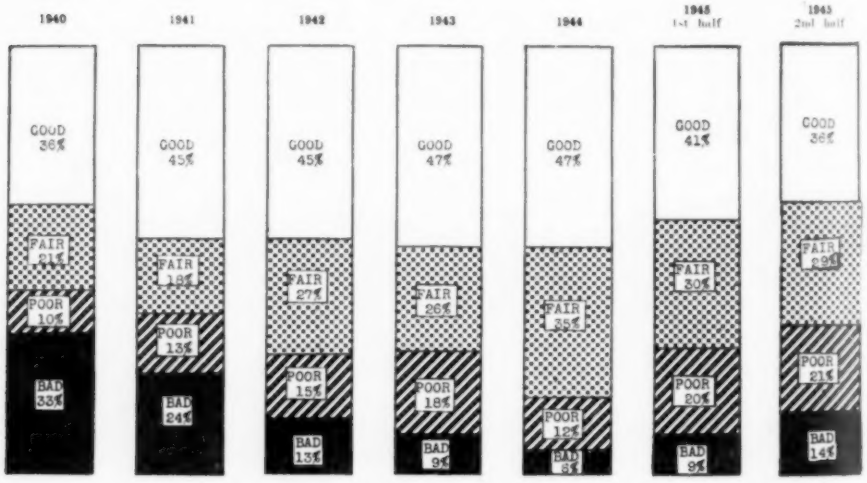
President, Charles F. Wilinsky, M.D., Boston
1st Vice-President, Vlado A. Getting, M.D., Belmont
2nd Vice-President, Edwin H. Place, M.D., Bethesda, Md.
Secretary, May C. Welch, Malden
Treasurer, Catharine Atwood, Boston
Representative to Governing Council of A.P.H.A., L. Jackson Smith, M.D., Springfield

FEDERAL BILLS PROPOSE CONTINUING SOCIAL PROTECTION DIVISION

The American Social Hygiene Association, New York City, is sponsoring the continuation in peace time of the federal services to the states provided since early in 1941 by the Federal Security Agency's Social Protection Division. Two bills have been introduced into Congress (H.R. 5234 by Representative Bolton and S. 1779 introduced by Senators Pepper, George, LaFollete and Taft). In connection with its promotion of these bills, the A.S.H.A. has published an analysis of a series of 2,276 studies in more than 1,100 communities near which members of the armed forces are stationed. This report is republished with permission of the A.S.H.A.

PROGRESS IN THE REPRESSION OF COMMERCIALIZED PROSTITUTION

An analysis of a series of 2,276 studies made by the American Social Hygiene Association, January 1, 1940—December 31, 1945, in 1,170 communities near which members of the armed forces are stationed



NOTE: In arriving at an opinion as to whether conditions in a given community should be classified as "good," "fair," "poor" or "bad," a number of closely related factors had to be taken into consideration. Briefly these are: (1) size of the community; (2) actual amount of prostitution activity found at time of survey; (3) accessibility of prostitutes, whether hard or easy to find. These factors are considered together to provide the basis for classification.

NATIONAL INSTITUTE OF HYDROLOGIC AND CLIMATIC MEDICINE IN HAVANA

The inauguration on the grounds of the Finlay Institute of the National Institute of Hydrologic and Climatic Medicine was announced by Dr. Luis Espinosa y G. Caceres, of the Ministerio de Salubridad y Asistencia Social, Cuba. Dr. Victor Santamarina is in charge.

COLONEL THOMAS B. TURNER AWARDED LEGION OF MERIT

Colonel Thomas B. Turner, former Director of the Civil Public Health Division, Office of The Surgeon General, has received the Legion of Merit for his part in "some of the most important advances made in Preventive Medicine Service during World War II.

Commissioned into the Army Medical Corps as a Lieutenant Colonel in January, 1942, Colonel Turner was appointed Director of the Venereal Disease Control Division in the Office of The Surgeon General. In January, 1944, he was designated Director of the Civil Public Health Division, where he served until his separation from service in January.

Prior to his entrance into the Army, Col. Turner was Professor of Bacteriology and in charge of the Division of Venereal Disease in the Johns Hopkins University School of Hygiene and Public Health, and served as consultant in venereal disease to the Rockefeller Foundation.

COLONEL E. R. LONG AWARDED LEGION OF MERIT

Colonel E. R. Long, MC, Chief Consultant in Tuberculosis, Office of The Surgeon General, has been awarded the Legion of Merit for his work in the "initiation and development of standards and measures for the detection of tuberculosis."

Colonel Long's distinguished service in also establishing "priceless permanent files of chest x-ray films of Army personnel," together with his methods of tuberculosis detection, was "of outstanding and lasting significance to the public health program of the country," according to the citation.

Commissioned into the Army as a Lieutenant Colonel in July, 1942, Colonel Long acted as Chief of the Tuberculosis Section, Medicine Branch, Medical Practice Division of The Surgeon General's Office. From July, 1943, until December, 1943, he was Chief of the Medicine Branch and had been promoted to Colonel. In January, 1944, he became Assistant Chief of the Professional Service and in August of the same year was assigned to his present position as Deputy Chief of the Professional Administrative Service. He was appointed Consultant in Tuberculosis in January, 1944.

During the past year he was visiting Consultant in Tuberculosis in the Mediterranean and European Theaters of Operation; Chief of the Tuberculosis Section of the Public Health Branch, Office of the Military Government, U. S. Zone, Germany; and Acting Director of the Tuberculosis Service, Veterans Administration.

Prior to entering the Army, he was Director of the Henry Phipps Institute and Professor of Pathology at the University of Pennsylvania.

STUDY CITY-COUNTY CONSOLIDATION

In Jefferson County, Alabama, which includes the City of Birmingham, a commission to study the question of city-county consolidation was organized late in 1945 under the authority of the 1945 legislature. The president of Howard University was elected chairman and the director of the Bureau of Public Administration at the University of Alabama, secretary. This commission is charged by law to report its findings to the 1947 session of the legislature. Some three years ago the Bureau of Pub-

lic Administration, at the request of the Jefferson County legislative delegation, made a survey of the feasibility of consolidating the county and city school systems.

DR. LEONARD A. SCHEELE RECEIVES U. S. TYPHUS MEDAL

The War Department, Washington, D. C., has announced that Dr. Leonard A. Scheele, Senior Surgeon, U. S. Public Health Service, has been awarded the United States of America Typhus Commission Medal for "exceptionally meritorious service in connection with the work of the Typhus Commission during the period 1944–1945 in the European Theater of Operations. As Chief of Preventive Medicine Section, Public Health Branch, G-5, Supreme Headquarters, Allied Expeditionary Forces, Dr. Scheele took an important part in the development of policies, the determination of plans, and the accumulation of supplies essential for typhus control among refugees and displaced persons in zones of Northwest Europe regained from the Germans by British and American forces. Through his personal qualities he inspired coöperation and coördination between agencies, international as well as American, civilian as well as military, and groups concerned with typhus control in these regions. His contributions aided directly in preventing the spread of typhus in Northwest Europe."

Dr. Scheele has returned to the National Institute of Health and is serving as Assistant Chief of the National Cancer Institute, Bethesda, Md.

U. S. ARMY ANNOUNCES NEW ANTI-MALARIAL DRUG

The Surgeon General of the U. S. Army announced in February that the new anti-malarial drug, SN-7618, which the Army Medical Department played an important part in developing, has been found to be superior in many ways to quinine or atabrine. Studied in collaboration with the Interservice Board for the Coördination of Malarial Studies, SN-7618 was tested in experiments at Harmon General Hospital, Longview, Tex., and Moore General Hospital at Swannanoa, N. C., in addition to some overseas theaters of operations.

Designed to obtain information on the value of the drug in controlling the symptoms and fever occurring in acute attacks of malaria, these studies included the observation of more than 600 malaria-stricken soldiers, who were given different amounts of the drug in from one to seven days. When notations had been made of symptoms such as the passing of the fever and the disappearance of malarial parasites from the blood stream, the patients were kept in the reconditioning section to determine the possibilities and time intervals for relapse. Comparisons were made of the results with those obtained in similar studies of atabrine, quinine, and other new drugs. It was found that one day's treatment with SN-7618 promptly controlled fever and other symptoms, and that the parasites rapidly disappeared from the blood.

Observation periods of four months showed that 75 per cent of the men tested suffered relapses. Though this number is similar to that found in experiments with quinine and atabrine, the interval between attacks was found to be longer when SN-7618 was used. Patients soon acquired a preference for the drug because of its rapid action, which permitted them to leave the wards within two or three days. Though SN-7618 is considered superior to other anti-malarial drugs in that it does not discolor the skin, upset the stomach, or cause a buzzing in the ears, it is not a one-treatment cure for vivax malaria. Weekly doses of the drug can be taken to avoid relapse after an acute attack, but upon discontinuation of the treatment further relapses may occur.

SN-7618 was so named because it was the 7618th drug tested in the four year program sponsored by the Committee on Medical Research. The program was financed by the Office of Scientific Research and Development.

CHANNELS FOR OVERSEAS FOOD RELIEF

Inquiries which have reached the office of the American Public Health Association as to approved channels for providing food for overseas relief have prompted inquiries on behalf of those who are desirious of adding private subscriptions to the public effort.

The Victory Collection of Canned Food, conducted by the Community Canning Program for Overseas Relief and on behalf of the United Nations Relief and Rehabilitation Administration, has offices at 100 Maiden Lane, New York 7, N. Y. This agency through UNRRA channels is prepared to expedite the distribution of foods throughout Europe, Asia, and the Philippines and wherever UNRRA channels are in operation. According to the statement by this organization, there are more than twenty-eight million persons in Europe alone who will get less than 1,500 calories per day and large groups who will receive as little as 1,000 calories, or one-half enough for subsistence. Contributed canned food will be distributed free overseas and funds for the purchase of food may be sent to the Victory Food Collection at the above address.

NEW YORK ACADEMY OF MEDICINE INSISTS ON STANDARDS FOR COMMISSIONER

Resolution adopted at a meeting of the Committee on Public Health Relations of The New York Academy of Medicine, March 11, 1946

RESOLVED, That with the approval of the President of the Academy the following statement be sent to the Mayor of the City of New York.

Upon the recommendation of its Committee on Public Health Relations which has given this matter serious consideration, The New York Academy of Medicine desires to call the attention of Mayor O'Dwyer to the fact that his recent appointment of a successor to Dr. Ernest L. Stebbins is contrary to paragraph 551b of Chapter 22 of the Charter of the City of New York which requires that the Commissioner of Health shall have had at least 8 years' experience either in public health administration or teaching or both. These mandatory qualifications of the City Charter are comparable to the training and experience required by the State of New York for health officers of all other cities in the State with a population of more than 50,000.

In pointing out that Dr. Edward M. Bernecker has not had the training or experience in public health administration or teaching required by the Charter, and therefore does not qualify under the Law for the position of Health Commissioner of the City of New York, the Academy has no intention of questioning his personal integrity or his qualifications as a hospital administrator. It wishes rather to indicate to the Mayor that experience in hospital administration is in no way equivalent to that training or experience in modern public health practice which a Health Commissioner requires in arriving at important decisions daily which may affect the health of almost eight million people. The appointment of a person not meeting the Charter qualifications as Health Commissioner of the City of New York constitutes a reversion to the public health standards of a past generation, before public health administration had developed into a complicated and highly skilled specialty, and before outstanding schools of Public Health had been established at the major universities of this country.

In the opinion of the Academy, the people of the City of New York de-

serve the services as Health Commissioner of the best qualified person available in this country. It was with this objective that the State of New York secured the services of its last Commissioner, Dr. Thomas Parran, who subsequently rose to be the Surgeon General of the United States Public Health Service, and that the City of New York secured the services of Dr. Ernest L. Stebbins who now leaves the employ of the City after a period of distinguished service, to become Professor of Public Health Administration and head of the great School of Public Health at the Johns Hopkins University.

The Academy, therefore, urges the Mayor to rescind his recent action, and to appoint as Commissioner of Health one who possesses the training and experience required by the City Charter and who will maintain and extend high standards of public health in this City, and, by example, throughout the Nation.

NORTHERN CALIFORNIA PUBLIC HEALTH ASSOCIATION OFFICERS FOR 1946

President, E. A. Reinke, Berkeley
Vice-President, Helen Hartley, Stockton
President-elect, Sanford Farnsworth, M.D., Oakland
Secretary, Margaret Beattie, Berkeley
Treasurer, Thomas M. Sperbeck, Marysville

RHEUMATIC FEVER FOUNDATION IN SYRACUSE

The Rheumatic Fever Foundation of Onondaga County, New York, was incorporated on October 26, 1945. As its first activity, a 40 bed composite medical center, home, school, and church for the care and treatment of children suffering from rheumatic fever and rheumatic heart disease was opened in Syracuse. The objectives of the Foundation are to maintain a hospital and dispensary for treatment, a coördinated clinic for the follow-up of discharged patients, to maintain a research laboratory, and to coöperate with other agencies in the prevention, detection, and treatment of rheumatic fever and its complications. It has a seven-man board made up of two physicians and five laymen.

PERSONALS

Central States

FRANCIS E. COLIEN, PH.D.,* has been honorably discharged from the Sanitary Corps with the rank of Lieutenant Colonel, having served as executive officer and chief of the Laboratory Service in Sanitary Corps assignments. He returns to his former position as associate professor of bacteriology and public health and preventive medicine at Creighton University School of Medicine, Omaha, and as director of the Omaha Department of Health Laboratories.

JOHN M. HEPLER, C.E.,* Director of the Bureau of Engineering, Michigan Department of Health, Lansing, recently spent several weeks in Puerto Rico at the School of Tropical Medicine, San Juan, lecturing on public health engineering and attending the meetings of the Puerto Rico Public Health Association.

LEWIS S. JORDAN, M.D., Granite Falls, Minn., was elected President of the Minnesota Public Health Association recently to succeed FRANCIS E. HARRINGTON, M.D.,† Minneapolis.

WALTER B. QUISENBERRY, M.D.,* who recently completed a course at the Johns Hopkins School of Hygiene and Public Health, Baltimore, has been appointed Director of the State Division of Venereal Disease Control in Nebraska, succeeding REGINALD A. FRARY, M.D.,† resigned.

MARY E. W. SOULES, M.D.,† of Dickinson, No. Dak., was recently appointed Director of the Southwest District Health Unit which comprises the counties of Slope, Bow-

man, Golden Valley, Billings, Hettinger and Adams.

LT. COL. JOHN T. TRIPP,* Director of the Division of Biologic Products in the Michigan State Department of Health laboratories, Lansing, has returned from China where he spent 18 months under the Department of State Cultural Coöperation Program. Col. Tripp helped to set up a central laboratory in China for the standardization of biological products.

ROBERT YOHO,† who has been connected with the Indiana State Board of Health, has been appointed Director of the Division of Health and Physical Education.

Eastern States

BAILEY B. BURRITT † was elected President of the New York Tuberculosis and Health Association at the annual meeting of the Society in January.

SUE THOMPSON GOULD, M.D., M.S.P.H.,* who has been Acting Commissioner of the Columbia County Department of Health, Hudson, N. Y., since 1942 has been named Commissioner for a six year term.

MORRIS B. JACOBS, PH.D.,† Senior Chemist in the New York City Department of Health, has been appointed chief of the Chemical Laboratory of the Department.

MORTON A. SEIDENFELD, PH.D.,† recently Lieutenant Colonel in the Division of Neuropsychiatry of the Surgeon General's Office, U. S. Army, has been appointed Director of Psychological Services for the National Foundation for Infantile Paralysis, New York City.

HARRY P. WAREHAM, Rochester, N. Y., has been appointed Executive Vice President of the American Society for the Hard of Hearing, Washington, D. C., effective March 1. Since 1919, Mr. Wareham has been identified with Community Chest activities in Rochester and other cities.

The appointment of ISRAEL WEINSTEIN, M.D.,* of New York City as Deputy Commissioner of Health, New York City Department of Health, succeeding FRANK A. CALDERONE, M.D., M.P.H.,* was announced on March 6. Dr. Weinstein formerly was director of the Bureau of Health Education in New York City and more recently has served with the armed forces.

JOHN S. WHEELER, M.D.,† released December 1 from the Army with the rank of Major, has been appointed State Health Officer of New Hampshire, succeeding ALFRED L. FRECHETTE, M.D.,† Concord. MARY M. ATCHINSON, M.D.,† Acting Deputy Health Officer in the Department, has been appointed Deputy Health Officer.

CHARLES A. ZELLER, M.D., Superintendent of the Philadelphia State Hospital, has accepted the appointment as Director of the Michigan Department of Mental Health, effective March 1.

Southern States

CHANGES IN HEALTH PERSONNEL IN FLORIDA:

E. J. TEAGARDEN, M.D., has resigned as Director of the Division of Tuberculosis Control of the State Board of Health, effective December 31, 1945. DR. CLARKE W. MANGUN,† now Assistant, will serve as Acting Director temporarily.

J. O. BARFIELD, M.D.,† who has served for the past 5 years as Director of the Bay County Health Dept. with headquarters at Panama City, resigned December 15, 1945, to enter Government service.

ROBERT FAWCETT SAYRE, M.D., has been released from service in the

* Fellow A.P.H.A.
† Member, A.P.H.A.

Army Medical Corps and appointed Director of the Northern Florida Health District, with headquarters at Lake City, effective December 15, 1945.

JAY C. MILLER, M.D.,† of the U. S. Public Health Service, who has been Acting Director of the Bradford-Clay-Union Health Unit was transferred by the Public Health Service to a station in another State, effective January 3.

LORENZO L. PARKS, M.D.,† recently returned from foreign service, has been appointed Director of the Duval County Health Department with headquarters at Jacksonville. Dr. Parks, previous to his military service, was Director of the Bureau of Local Health Service.

CHANGES IN HEALTH PERSONNEL IN KENTUCKY:

GEORGE M. WELLS, M.D., Bowling Green, has returned to the Directorship of the Warren and Simpson County Health Departments, succeeding PAUL Q. PETERSON, M.D.,† who has been granted a scholarship in public health at the University of Michigan.

RAYMOND E. WEHR, M.D., Newport, has been named Health Officer of Campbell County.

FRANK K. SEWELL, M.D.,† has been named Health Officer for the Knox, Whitley and Laurel County Health District, succeeding RICHARD B. FULKS, M.D.,† Barbourville, who has been granted a fellowship to pursue a course in public health.

JOE W. SAVAGE of Charleston, W. Va., has been appointed Executive Director of the National Foundation for Infantile Paralysis, New York City. Mr. Savage, who recently was a major in the Army Air Corps, was for more than 12 years Executive Secretary of the West Virginia Medical Association.

Western States

ISABEL M. GONZALES has been appointed to the position of Spanish Health Education Worker in the Denver Tuberculosis Society, Denver, Colo. She will organize the Spanish-speaking population in health activities.

LELAND E. POWERS, M.D.,† formerly of Seattle, Wash., who for the last year has served as chief medical officer of UNRRA in China, returned to the State of Washington in February to assume a connection at the University of Washington. Dr. Powers was formerly Washington State Health Officer.

CHANGES IN HEALTH PERSONNEL IN WASHINGTON STATE:

LEONARD A. DEWEY, M.D., upon his discharge from the Armed Services, returned to his work as Head of the Venereal Disease Control Section on February 1. DR. GEIDT, Head of the Epidemiology Section, took charge of Dr. Dewey's Section while he was away.

ROY M. HARRIS, who has been on Military Leave, returned to his former position as Chief of the Division of Public Health Engineering on February 8. EMIL C. JENSEN, who has been Acting Chief of this Division, has returned to his former position as Head of the Sanitary Engineering Section.

RALPH R. SACHS, M.D.,† was appointed Head of the Field Consultation Section in the Washington State Department of Health's Division of Local Health Services, on January 14. Dr. Sachs was formerly Public Health Supervisor for the Hanford Engineer Works, Washington's atomic bomb project.

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* Fellow A.P.H.A.
† Member, A.P.H.A.

RALPH L. NIELSON was recently appointed Director of the survey of hospital and health center facilities throughout the state and to formulate a plan for the coördinated development of hospital facilities. Mr. Nielsen was formerly Assistant Agriculture Economist for the Southwest Region of the U. S. Department of Agriculture and was stationed at Berkeley, Calif.

Foreign

LT. COL. ROBERT C. HUME, M.D.,† now on terminal leave after his return from overseas duty as Public Health Officer for U. S. Military Government in Vienna, has joined the Medical Department of Standard Oil Company of New Jersey, with offices in New York City.

CAPT. THEODORE R. MEYER, MC, USNR,* has returned from Greece after 10 months' duty as Officer in Charge of a special Navy epidemiological unit formed at the request of the Greek Government for the purpose of improving public health conditions in that country. Capt. Meyer is now on temporary duty in the Bureau of Medicine and Surgery, Navy Department. He was Health Commissioner of St. Louis County prior to his entry into active duty in the Navy in 1941.

FLORINE THOMASON, R.N., formerly Assistant Director of Nursing Service of the Eastern Area of the American Red Cross, has returned from 3 years of overseas duty with the Army Nurse Corps and is now Associate Director of the Volunteer Nurse's Aide Corps, with her office at Red Cross national headquarters, Washington, D. C.

Deaths

The death of MRS. JESSE W. LAZEAR, widow of the Late DR. JESSE W. LAZEAR of the U. S. Public Health Service, who died during his investigation of yellow fever in 1900, was announced in Santa Barbara, Calif., on February 26.

MAJOR WILLIAM HENRY LLOYD,† U. S. Army Medical Corps, Retired, died on February 14 at his home in Mt. Victoria, Md., of coronary thrombosis. He was in his 69th year.

RESUMPTION OF CONFERENCE CALENDAR WITH THE APRIL JOURNAL

The Calendar of Conferences and Dates which the *Journal* carried until the ban on conventions by the Office of Defense Transportation last year, was useful to many persons. Now that conventions are being held again, it is being resumed with this issue. The Editors will welcome information about future meetings of state, regional, or national interest.

CONFERENCES AND DATES

American Medical Association. San Francisco, Calif. July 1–5.

American Public Health Association — 74th Annual Meeting. Cleveland, O. November 12–14.

American Water Works Association—1946 Conference. St. Louis, Mo. May 6–10.

Pacific Northwest Section—Gearhart Hotel, Gearhart, Ore. May 23–24.

National Conference on Social Work. Buffalo, N. Y. May 19–25.

National Education Association. Buffalo, N. Y. July 1–5.

National Probation Association. Buffalo, N. Y. May 17.

National Tuberculosis Association—Annual Meeting. Buffalo, N. Y. June 11–13.

New York State Association of Public Health Laboratories—Annual Meeting. State Laboratory, Albany, N. Y. May 17.

New York State Association of Health Officers and Public Health Nurses—Annual Conference. Grand Union Hotel, Saratoga Springs, N. Y. June 25.

Society of American Bacteriologists—1946 Annual Meeting. Hotel Book-Cadillac, Detroit, Mich. May 21–24.

West Virginia Public Health Association—1946 Annual State Health Conference. Prichard Hotel, Huntington, W. Va. May 2–4.

A Healthy Sign to the Busy

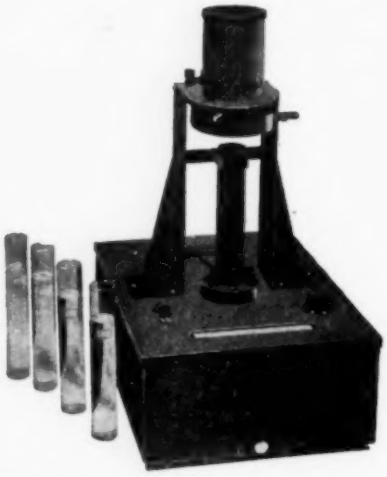
PUBLIC HEALTH INSPECTOR

DIXIE CUPS

Bactericides *are* different

FREE BULLETIN GIVES PROOF

Free bulletin shows why Diversol . . . with its 10 "action features" . . . is different from ordinary bactericides. A quick-acting, crystal sodium hypochlorite, Diversol helps control bacteria, mold, and yeast. **The Diversey Corporation, 53 W. Jackson Blvd., Chicago 4, Ill.**



LUMETRON

Photoelectric Colorimeter Mod. 450 for Nessler Tubes

A new photoelectric instrument of high accuracy for the measurement of color and turbidity as well as for all analytical colorimetric tests in the sanitary examination of potable and purified water.

- Turbidity tests in terms of APHA (ppm) scale.
- Color tests in terms of APHA (mg pt) scale.
- Suited for determination of ammonia nitrogen, nitrate, nitrite, and for all other colorimetric tests according to APHA "Standard Methods".
- Operates with all "low-form" Nessler tubes 32 mm O.D., 200 mm high. Requires no matched sets of tubes.

LUMETRON Mod. 450 eliminates the uncertainties of visual matching methods. It requires no permanent color standards and furnishes reproducible results independent of individual judgment and of light conditions.

Write for literature to

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